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The Progress of Invention.

IF it were possible to take an airy flight, such as that described by the imaginative author of the "Diable Boiteux," and to peep unseen at the silent occupations of our neighbours, we should probably be surprised at one feature of the time. We should discover, unless we are much mistaken, that a bent has been given to the energy of thought which is already producing marvellous results, — results, however, which can as yet only be compared to the upspringing of the first green blades which promise an abundant harvest hereafter. We refer to the great stimulus which has been given of late to the creative power of the inventor.

We doubt how far public opinion has yet recognised the character of the revolution in the midst of which we live. We are not speaking of political, or even of social, change. But we refer to that which is more potent in its effect than anything that legislation can produce,—the application of the forces of Nature to the service of man. The commencement of this revolution was made, as we all know, by the genius of Watt, in the invention of the steam-engine. The next powerful impulse was given by the genius of Stephenson, when he employed the steam-engine as a locomotive agent. And there are signs abroad that a third wave is on the flow, and that we are about to reap more fruit from the progress of invention than could have entered into the wildest dreams of the fathers of mechanical science. Not a month passes without some great indication of the activity of the inventive power. Not a step is made in chemical, mechanical, or physical discovery which does not open a wider vista, and a more commanding range of prospect, than could be attained at a lower elevation.

Two main obstacles tend to arrest the progress of useful discovery. One is the ignorance of the inventor of what has been done before his time. The other is the unwillingness of those who use inventions to admit that any improvement is necessary or useful, as compared with their own mode of conducting affairs. Of these the first, which has hitherto probably been the most serious, is also that which it is most easy to remove. It may be removed, to some extent, by journals such as our own. It is, at least, made to a great extent removable, by the admirable organisation of the Patent Office. As matter of economy in time, which is also economy in money, there can be no excuse for any inventor to whom London is accessible if he wastes his valuable time in the rediscovery of expedients already tried, owing to the fact that he has not paid a visit to the Patent Office, where, free of charge, he can consult the indices, and peruse the specifications, of all patented inventions bearing on his subject. And yet even at the moment at which we write we are told of a large expense to which a man of long and well-known mechanical experience is putting the War Department of a neighbouring nation, by making, on a large scale, experiments on the explosion of ordnance under water,—a point on which experiments already made on a small scale are, if correctly reported, entirely conclusive, in a negative sense.

Impatience, characteristic as it is of the peculiar idiosyncracy of the inventor, leads only to loss of time. True, this is loss of productive power; but nature is full of cases of the loss of productive power. It is a law of organic life that production is enormously in excess of what might be thought necessary to maintain a given level of numbers. The impatience of the inventor is a shadow cast by his genius, and we must be content to take him as he is, and to be thankful. But it is quite another thing when the impatience is displayed, not by the inventor, but by the opponent of invention. No great invention, as far as we are aware, has ever been brought before the world without awaking a very strong resistance. And this resistance, it often proves, is made by the very men who would be, when the account was finally balanced, the most benefited by the change. A case in point is that of the opposition made by divers to the introduction of a closed and safe diving-dress, in place of the loose diving-helmet which would fill with water if the diver happened to fall. Such, again, is the opposition which has maintained the prescriptive badness and ugliness of the ordinary brick, by the violent opposition made by the brick-moulder to brick-making machinery.

The most remarkable instance of a successful opposition to a great improvement which has hitherto been stated to us is that of an eminently respectable body of men to a simple invention that would enable them to work with far more ease, and probably to obtain far more work, than at present. We refer to the method of casting types, which was perfected, we believe, by a Pole, now many years since, and which, being connected with the further introduction of what were called logotypes, or compound letters to be used in printing, has been known by the name of the logotype system. Of that system, as a whole, we have nothing to say. No doubt it is extremely ingenious; but how far that ingenuity has a commercial value nothing but actual experience can determine. It is otherwise with the plan of casting each type with a letter at each end; reversed, as at present, below, but upright at top. In fact, it is as if each type were a solid letter, passing through a rectangle of metal. The effect of this is, that when the types are set up they can at once be read, the back of the form representing exactly the impression of the face. The objection to that method is, that any one can use it. That the trained compositor could use it better than any one else, and thus could always command his proper remuneration, cannot be denied. But the possibility that women, children, or even authors themselves, should be enabled to compose type, is said so to have alarmed a body of men who may be said to guard the very springs of printed literature, that the greatest improvement in printing made since the invention of movable types has not hitherto been carried out. It is, however, only fair to add that the compositors demur to the charge that they have opposed the introduction of this great improvement. Bearing in mind that utter impracticability in matters of business which is so frequent a characteristic of the inventor, it is quite possible that the blame of failure has been unjustly thrown on them.

It is well known to many of our readers that it is to the industrial application of electricity that science is now looking for the greatest and most surprising advance. Such advance is rendered possible by the fact that we now look to electricity not as a prime motor, but as a means of communicating power. For more than a quarter of a century inventors attempted to supersede steam by electricity. It was when, accepting the steam-engine as the cheapest mode yet known for converting heat into motion, they used the motion so obtained for the production of electricity, that a new chapter in physical science was opened. Light, sound, power, are all to be produced or transmitted, with wonderful economy, by the agency of electricity. Coal is, at present, the cheapest source for the heat thus to be converted and transmitted. But if the transmitting agency be developed, as the best authorities fully anticipate will be the case, to its full extent, man will be able to make use of the wasted mechanical force of nature, the action of the tides and the rivers, as a cheaper source of heat and of motion than coal, which he has to extract from the bowels of the earth.

As a sign of that inventive activity of which we speak, it happened that a few days ago the same morning paper contained notices of two novel inventions, quite independent of one another, the practical success of either of which would open a new chapter in the mechanics of daily life. One of these was the application of electricity to agriculture; the other was the application of compressed air to locomotion. In both cases the account was wrongly headed We were told of electricity as a motive power, and of compressed air as a motive power. The term is inexact. It is a survival from the time when the labours of engineers were turned in a wrong direction. It is as a convenient, and probably hereafter fully successful, means of the transmission of power, that each of these inventions has its value. The air has first to be compressed before it can yield power from its elastic recoil. The Gramme machine has to be

set in revolution by a portable steam-engine before it speeds the plough or drives the thrashing machine.

Beginning with the invention which, if fully successful, will most directly affect the comfort of the inhabitants of cities and towns, we have to refer to some experiments lately made at the Royal Arsenal, Woolwich. Colonel Beaumont, R. E., has been for four years experimenting on the use of compressed air for driving locomotives. To avoid the necessity of carrying a furnace on an engine, to obviate heat, smoke, smell, in tunnels or city streets, while at the same time exerting a power as manageable as that of the ordinary locomotive, would be, there can be no doubt, an immense gain. Not a gain, we repeat, in cost or in production of power; but a gain of extraordinary utility in its application. For the passage of a train through a tunnel to be made a means of ventilation, instead of a means of poisoning the air, is an advantage that speaks for itself. We do not ask for that transmission to be made a source of direct saving. If the additional cost incurred be not more than will counterbalance the advantage gained, we shall be more than content; we shall have made in that case a very important step in the right direction.

The mother idea of Col. Beaumont is one that commends itself to the engineer. It is an application and a considerable development of that principle which, as carried out in the compound engine, has effected so much economy in ocean steam-transport. The object of the plan is to utilise during expansion the whole force that has been stored up by the compression of a given volume of air. This is effected by allowing the compressed air to pass successively through a series of cylinders, each of a larger diameter than its predecessor. Thus, admitted under a pressure of 1,000 lb. per square inch into the first and smallest cylinder, the air, having expanded and thus done its work, passes into a second cylinder of larger volume, where it repeats the process; thence, again, it passes into a third and yet larger cylinder, from a port at the side of which, having done its last period of work, it escapes noiselessly into the atmosphere. There can be no doubt of the elegance of the scheme.

The machine resembles a large tank upon wheels, which is distinguished from the ordinary locomotive in its appearance by the absence of a funnel. The present form of the engine, however, is not that which will be adopted in future. The air is compressed by a stationary engine and machinery into the reservoir of the locomotive air-engine. In the experimental trials reported, a distance of about 700 yards was traversed, to and fro, by the engine. The work done in hauling an aggregate weight of 12 tons for a distance of three miles is said to have reduced the pressure in the air-reservoir from 1,000 lb. to 820 lb. per square inch. As neither the dimensions of the cylinders, the volume of the receiver, or the incline of the road, are mentioned in the report, we are unable to make any calculation as to the economy of the process. The engine, we are told, is arranged so as to make a run of twenty miles with a single charge of air. It ought to be said, in explanation, what is the volume of the air used, and what the weight hauled, and the gradients of the line. We are informed that a gross load of 22 tons has been hauled for eleven miles, and a gross load of 12 tons for over twenty miles, under the inspection of the Arsenal authorities. If the mileage, with a single charge of air in each case, is measured, as we conclude must be the case, to and fro on the 700 yards of rail, the rise and fall of gradient, if any, may be taken practically to balance one another. But points of this kind ought to be distinctly stated, and not left to be inferred by men competent to form a scientific opinion on the work done. We shall be glad to receive exact particulars. The deduction is stated that the engine will take 3 tons one mile with the expenditure of one cubic foot of compressed air.

To compare this with the efficiency of a steam-engine we have to remember the serious loss of power that occurs in the case of compressed air as a transmitter of energy, due to the free action of heat. When air is compressed, the temperature rises, and caloric escapes by conduction and radiation, with a speed proportioned to the difference of temperature within and without the receiver. It was this incontrollable movement of heat that formed the insuperable stumbling-block in the progress of the atmospheric railway. At the pumping-stations on the South Devon line the air-pumps became nearly red hot, and much inconvenience ensued. On the other hand, the rarefied, and consequently cooled, air within the tubes had a great capacity for heat, which accordingly rushed in through the conducting surface of the atmospheric main, and raised the tension of the air within it. Thus the engines were doing more work in squeezing out of the air heat which rushed in almost as fast as it was extracted than they did in moving the trains.

In the present case, Colonel Beaumont has been aware of the extreme cold produced by the expansion of highly-compressed air, which is so great as to condense and freeze the moisture of the atmosphere on the working parts of the engine. To counterbalance this, a small steam-generator is used, which is carried on the framing of the engine. It may, no doubt, be possible not only to counteract the mechanical ill effects of the formation of ice, but also to supply heat to the expanded air in the second and third cylinders, by the agency of steam. But this agency requires the consumption of an equivalent quantity of coal. Here is another source of expense. With a fixed condensing apparatus, and a locomotive expansive apparatus, it must prove difficult, if not impossible, to prevent a serious loss of heat; that is to say, a serious excess of cost, as compared with the duty to be obtained from a steam-engine.

We do not make these remarks with the object of throwing cold water on a very elegant invention. To work a machine by compressed air (unless the prime motor be water-power), must necessarily be more costly than to work it by steam. But the convenience attained may be well worth the cost. In the case of city tramways, and of long railway tunnels, it would be well worth the while of the engineer to double the actual expenditure of fuel, if by so doing he could do away with all the annoyance of a locomotive furnace. We see no reason whatever to doubt that this may be effected, or that Colonel Beaumont's air-engine is a step in the right direction,—a step, moreover, which we hope to see carried to full and perfect completion by the gallant inventor himself. If those persons who take an interest in the matter will bear in mind that compressed air is not a source of power, but a mode of using power produced by the steam-engine, they will avoid undue expectations, and thus avoid unnecessary disappointment.

Remarks of exactly the same nature apply to the experiments recently made at Bar-le-Duc in the application of the Gramme dynamo-electric machine to agricultural purposes. Here, again, the reporters of the experiment head their account with the words "Electricity as a motive power." Here again it is the steam-engine which does the work, although the transformation and application of the energy liberated is effected, and possibly very admirably effected, by the intervention of the ingenious Gramme machine. Looking at what can now be effected by a pair of movable steam-engines, in ploughing, thrashing, and other agricultural operations, our own expectation is that it will be found to be chiefly, if not exclusively, in those cases where water is available as a cheap motor power that such an application of the Gramme machine as that made by M. Felix at Sermaize (in the department of the Marne), will be most useful. That opinion, however, does not detract from the interest with which these and all such actual experiments should be regarded. Two Gramme machines are employed; one is driven by a steam-engine, of which it is significant to remark that the power is not mentioned in the report. The other is fixed in a very solid framework of wrought iron, in the field which has to be ploughed. The transmission of the power from one Gramme engine to the other is effected immediately by a coil of wire on wooden reels. In this case it will be seen that, economically speaking, we have to compare the cost of the removal of the steam-engine to convenient spots for agricultural work, from time to time, with that of the providing of the electric apparatus, and of the removal of the second Gramme engine from spot to spot. There will also be the loss of power due to the friction of the Gramme machines, and the loss of electricity during conduction from one to the other. These elements of cost must, we apprehend, show a sensible balance in favour of the direct application of the steam-engine.

At the same time, the elegance and convenience of the transmission of power by copper wires is so great that we look with much interest to every practical experience on the subject. What M. Felix does, at Sermaize, by a steam engine, another cultivator may do, in another district, by economising the power of a waterfall. It is to the economising of the wasted force of nature that we must look,—first, for doing the work now done by the consumption of coal at a cheaper rate,—and secondly, for producing mechanical power, light, and heat, when our present coal-mines are exhausted. This is the ultimate point which the mechanic has to bear in mind. It is towards this that our most eminent electricians tell us that we are making steady progress. Our chief hesitation as to taking them at their word arises thus. If those laws of the conduction of electricity, to which we have before now referred, as enunciated by Sir W. Thomson and Dr. Siemens, are properly stated,—how is it that some practical demonstration has not already been given to the world? The saving to be effected is so great, that, in a country like our own, capital counted in millions would be forthcoming under far less promise of profit than that offered by this utilisation of electric force. How this may be, we do not at present understand. In the meantime, we look at such experiments as those of M. Felix with even more interest than at those of Colonel Beaumont. Only let experimenters and reporters keep it quite clear in their minds that compressed air, or dynamo-electricity, are not, properly speaking, motive powers, but transmitters, and transmitters at a certain loss, of motive power produced by the action of the expansive power of heat, or the constant activity of gravitation, and they will be saved from the danger of rash expectations, and more likely to take advantage of the facilities afforded by science.

STAINED GLASS FROM A MODERN POINT OF VIEW.

IN no respect does there seem to have been more difficulty in evolving a modern art out of revived Mediævalism than in the matter of stained glass, considered in reference to the style of design and the class of subject to be illustrated in it. A great many points in Gothic architecture, in regard to details especially, but in some respects also in regard to planning and arrangement of churches, have been so much modified under the influence of modern taste as to represent more or less of a real modern development from a Mediæval point of departure. The church which, as a whole, is a mere reproduction of Mediæval architecture, is becoming less and less common, and is only rigidly adhered to by a few very conservative church-building architects. But stained-glass design, though it has advanced very considerably in regard to the feeling for harmonious colour, still retains for the most part the characteristics of a modern Mediævalism. The same kinds of ornament, the same expressionless figures, still constantly meet our view, and seem to have become the stock-in-trade of at least a majority of designers, and to be regarded as an entirely satisfactory application of the resources of the art.

What makes this conservatism in stained-glass work the more remarkable is that at a comparatively early period of the Gothic revival it was recognised by some of those who took most interest in the subject that the archaic forms of Mediæval glass were not desirable models for mere imitation, more especially in regard to the figure. This is expressed strongly and plainly in Winstone's admirable book, now a classic of long standing on the subject. He not only deprecated the mere imitation of archaic figures, but he pointed out reasons for thinking that the makers of the Mediæval windows had hardly even any deliberate intention of conventionalising their figures; that they, in fact, wished to make them as naturalistic as their skill and the material allowed, and only failed in naturalism through inability to compass it. They endeavoured, also, to represent the perspective of their imitative architectural details, instead of keeping them absolutely in one plane and in geometrical elevation. It by no means follows that they were right in their theory, or rather (to put it more truly) their want of theory; their imperfect power of drawing and execution perhaps kept them in a path better suited for the conditions of the art than that which they would have followed had their hands been more free to carry out their intentions. But it is, at any rate, significant that there is no reason to

think that the special character which belongs to Mediæval glass-painting was imposed upon it by deliberate choice, or, in fact, by anything else than the limitations set by a want of skill to attain greater freedom of treatment.

But it is still more important to bear in mind that neither was stained glass in that day regarded as essentially and by preference a religious form of art, as it still for the most part is in the eyes of its modern patrons, if not of its modern practitioners. It was only a religious or ecclesiastical art in so far as the whole higher life of the day was connected with ecclesiasticism, and therefore all the arts were brought to the service of the church, as the one great outlet for anything like artistic and poetic creation. It represented the current feeling and sympathies of the day truly and without affectation. But this same form of art in our own day, in spite of efforts which have been made to throw off mere Mediæval defects of drawing, and to improve modern stained-glass design in that respect at least, is nevertheless an affectation as regards the present day, and in this respect has nothing in common with the Mediæval work upon which it professes to be based. The latter was in its day a living art representing the tastes and the artistic powers of the men of the day, just as truly as the Academy and Grosvenor exhibitions represent the taste and artistic power of to-day.

Even when Mediævalism in the strictest sense has been entirely thrown aside in modern stained glass, it has mostly been only in favour of the imitation of another bygone style,—the Cinque-cento. We have had, from the neighbourhood of South Kensington especially, specimens of glass design in which the features of Cinque-cento stained glass have been reproduced; its rawness in regard to colour, its clumsy reproduction of bad architectural detail, its rococo ornamental details. This is, in reality, a more undesirable form of imitative art than the quasi-Mediæval, as, with no more claim to originality, it has not even the merit of fine colour or of a treatment which brings out the characteristic qualities and effects of the material. Some of the work of this kind which has proceeded from quarters whence we have a kind of official right to look for artistic work, has been positively ugly as well as unsuitable, both in colour and design, and has presented no merit but that of falling in with the current taste for rather debased Classic detail, and providing windows to match.

There is one other class of stained-glass design which has considerable merit, that which may be called the modern Domestic style: a style in which simple motives in foliage design are introduced, consisting generally of sprigs of conventionalised flowers, treated often, both in design and colour, in a manner entirely suited to the material. The deficiency in most of this glass is, however, that it commonly wants distinct meaning and significance; that subjects that would be very appropriate and good as borders to some central design, become the centre and only object in the window; and, moreover, that there is a great want of variety and individuality in it; wherever we turn we see the same forms and the same colours; that it is, in fact, a recent mannerism, correct and tasteful in itself as far as it goes, but a mere mannerism, which any draughtsman can produce with little of pains or thought when once he has got the trick of it.

Now, we cannot but suggest that if stained glass be to be used at all in important situations, much more may and should be made out of it than this. We have much talk about the great importance of high-class mural painting at present, and the great work which such painting is calculated to effect in educating and improving public taste; and painters of the first rank among us have given some of their best efforts to it in a few instances, sometimes with signal success. But there seems to be no suggestion that translucent mural painting (which is what stained glass is) may be worth as much attention and as much application of the best artistic genius, as opaque mural painting. Stained glass is at present, in fact, even in its most satisfactory forms, rather an art-manufacture than an art.

Does stained glass, then, admit of the treatment of all the subjects which could be treated in mural painting, and under the same conditions? Certainly not. It is useful, perhaps, to look back at what has been done during the real lifetime of the art in the past, and see if we can gather from that any decided conclusions as to what can and what cannot be effectively attempted in the future. In regard to what cannot be done with effect, the point most plain to every one of critical perception is that landscapes and perspective grouping are entirely out of place. The former no one in his senses attempts now; but in regard to the latter it is necessary to reiterate the caution, for in many quarters there is a persistence in the adoption of perspective treatment, interiors with "vanishing points" and many figures on different planes of distance are still frequently to be met with, and all alike tend to prove that such a treatment is an utter mistake. A mural painting, though not admitting, in its most satisfactory modes of execution, of the illusory perspective and gradations of tone of a cabinet painting, nevertheless admits pictorial illusion to a certain extent, both in perspective and in gradation of distance, especially if its architectural framework be so designed as to give sufficient solidity to the architecture enclosing the space painted on, without absolutely demanding that the appearance of a flat wall should be retained in the painting. But a design which is lighted by transmitted light is (to repeat a commonplace for the hundredth time) essentially debarred from perspective or pictorial treatment by this one fact, even apart from other difficulties which are involved in the mechanism of the process, such as the impossibility of real gradation of tone, and in the necessity (in the only good and durable method) of strong lines of construction showing all over the picture.

Shutting out this kind of treatment, then, from among the possibilities of stained glass, we find in the art of the past in this material several different elements of design. We have figure-subjects in flat treatment, either in single figures or in groups, most often the former, as single figures are always more easily and suitably treated under such circumstances. We have ornamental diaper design founded either on geometrical or on floral types, and we have mimic architectural design serving usually as a framework to figures, and seldom used without them. This latter form of decorative adjunct has been a great favourite with modern stained-glass designers, as it was with Mediæval designers, during the latter period especially of Mediæval art. Perhaps it is not too uncharitable to suggest that in both cases the motive for favouring this style of treatment was the same,—in part, at any rate: it saves a great deal of trouble in design. The architectural features are, so far as the glass-designer is concerned, ready made to his hand, and their reproduction in the glass is a mere matter of drawing and arrangement, involving little or no thought. In addition to this, there may seem to be a suitability in repeating in the window design, in little, some of the architectural details of the building, so as to produce a consistent whole, the smaller decorative details repeating some of the character and design of the larger ones and of the whole building. And it is unnecessary to remark that this kind of repetition in little has been the basis of a great deal of architectural ornamentation in many styles and in many periods, and there is a good deal to be said in favour of it. But we do not think that the realistic imitation of architectural details in the window design is to be approved. If the influence of architectural detail shows itself in the window, it should not be in this way, but in a highly-conventionalised design which might appear as obviously suggested by, and in turn suggesting, architectural detail, but as completely modified to suit the conditions and requirements of glass. To do this well requires thought and consideration, and therefore it is not likely to be so popular a method; but it is the true one, and has the advantage, as it has not yet been much attempted, of affording a field for some novelty and invention in regard to detail.

In regard to diaper ornament, there is a wide field for invention. Hitherto our glass-designers have been just running in a groove, or, perhaps, in two grooves; but usually in one or the other, either that of conventional Mediæval foliage, or that of conventional modern foliage. Both employ very few types, and these are very artificially repeated. The Mediæval types may be summed up into the peculiar and admirable conventional scroll foliage which the earlier Mediæval designers invented (than which nothing, of course, could be better in its way), and the more naturalistic treatment of ivy, oak, or maple leaves. Modern conventional foliage has sought some new types, but they are still not very various, and the designs produced seem to us to have on the whole a remarkable degree of family likeness. Considering the endless variety of nature, it certainly cannot be said that we are quite at the end of our tether yet, and would seem that a study of floral designs from nature, appropriately conventionalised, ought to furnish work for new designs for a long time to come. We need, however, except in the case of a very small piece of work, something more as a central motive of interest than a mere diaper, however successful. To make the foliage grow out of a conventional vase, we may respectfully hint, is not quite sufficient. On the contrary, it is a piece of false artificialism, adverse to the true spirit of high-class ornament, which should be based either on abstract proportion or on forms of nature conventionalised according to natural principles; not upon any imitation of artificial objects, which is always a sign of weakness, and a source of vulgarity of effect. Heraldry is rather at a discount now, otherwise it affords a very good and legitimate means of giving some meaning and interest to a window, without which a mere diaper is no more than a successful wall-paper pattern shown in more brilliant colouring than is possible on an opaque wall. The introduction of scrolls with inscriptions is a means of imparting a meaning to a window which may be varied in relation to the various destinations of the window designs, and which, in combination with foliage diaper, may be elaborated into something very satisfactory to the eye and suggestive to the mind. But it may be suggested that one of the best ways of giving specialty of interest to a stained glass design is in the introduction of either ideal or portrait heads. This source of interest has not been enough drawn upon. Whatever difficulties stained glass imposes upon figure design, the portrayal of character in large-sized heads is possible in it with great effect, provided that the treatment is of that broad, decided style in which a few lines give the likeness and the expression, omitting details of modelling such as cannot be expressed on glass. Tennyson gives us a hint in the decorations of his "Palace of Art,"—

> "And from the topmost oriel's colour'd flame,
> Two god-like faces gazed below,—
> Plato the wise, and large-brow'd Verulam,
> The first of those who know."

But we opine that the treatment of portraiture of a less ideal kind may be successfully achieved in stained glass. And the introduction of even a single medallion of this kind in a large light is sufficient to give it an interest and a meaning; the spectator will be content with a large expanse of good diaper work, provided it lead up to something ("and so grow to a point"), but he will hardly be content for very long with diaper and nothing else,—*toujours perdrix*.

We passed over the question of merely formal diaper design, produced by the interlacing of various shapes with no assistance from floral types; but it may be observed that here, too, we are travelling round in a beaten track. The designs that are made for merely ornamental quarries and interlacing diapers are mostly only repetitions of Mediæval types. These types themselves might be varied and improved upon more than they are; and the rich and endlessly-varied combinations suggested by the Saracenic type of ornament alone have hardly been touched upon. Another suggestion that might have been made, when speaking of floral types of design, is that in designing windows for a Renaissance building there is scope for the treatment of some of the types of conventional foliage which are peculiar to Roman and Renaissance ornament, in such a manner as to convey the same general effect which belongs to such ornament, while employing in detail natural leaves and flowers an experiment which has hardly ever, as far as we are aware, been made.

In regard to the highest class of art, figure design, what are we to say as to the capacities of stained glass? We are disposed to urge that the art is very well adapted for the display of figure design, single figures especially (better than groups), on a tolerably large scale and with a sufficiently severe and what may be called in a sense sculpturesque kind of treatment. Figures on a small scale are seldom successful in regard to the heads: the detail of the expressions is almost necessarily missed, on a small scale, in so inflexible a mode of execution, and even the limbs (if shown) are apt in such a case, with whatever care, to appear coarse in execution, and overweighted by

the heavy lines of the leading. These latter, on the contrary, have no ill effect on the figure when on a larger scale; and even subjects which include the nude figure may be presented, we believe, with good effect in stained glass, provided the design is treated with that degree of conventionalism which prevents the spectator from feeling the want of realistic tone and tinting, which would be hardly possible. It may be thought that to use the nude figure in stained glass would be to throw away too much what is one of the chief capabilities of the art,—that of brilliant colour effect; but we do not always require highly or richly-coloured windows; and if the plain surface occupied by the figure be sufficiently relieved by the juxtaposition of diaper and other decorative surfaces or adjuncts, not in so heavy a key as to contrast harshly with the figure, the requirement of colour and richness would be sufficiently fulfilled. The attempt would, at any rate, be an important step towards breaking through the merely ecclesiastical idea about stained-glass figure-subjects.

We do not, as we said, always want richly-coloured subjects, and, in fact, the effect of heavily-toned stained glass in lessening the scale of an interior is a point as often overlooked as it has been often referred to and commented on. The key of the interior in regard to tone (if decorated), the scale of it, and other conditions (as to access of light, for instance), should determine the key of the stained-glass design, which may sometimes necessarily have to be rich and heavy, in order to make itself properly felt, and to aid in producing the total effect required; but which very often operates injuriously by being over rich and strong in colour. Primary colours, it can hardly be too often urged, should seldom or never be used in large masses,—rather in brilliant points. But whatever reticence may be judicious in regard to colour in many instances, it may be said that in regard to ornamental and diaper design hardly any degree of elaboration, if carried out in good taste, can be too great for the situation. Whether high or low in scale of colour, a stained-glass window is essentially decorative art, and the more decorative, we might say, even (under certain restrictions as to colour and keeping), the more sumptuous it is, the better it fulfils its purpose as a part of the whole.

EXPLORATION IN ASIA MINOR.

MAGNESIA AND THE TEMPLE OF ATHENE-POLIAS AT PRIENE.

HALFWAY on the dusty, burning road that Cicero described 1,800 years ago, and which leads from the antique Tralles, the modern Aïdin, of which M. Rayet has told us so much,* and the squalid village of Aya-Soulouk, which has replaced the once opulent city of Ephesus, lie, at the eastern foot of the Kemer-Dagh (the classic Mount Thorax), a heap of ruins marking the site of Magnesia of the Mæander. Surrounded though it is by the marshes of the river, the district is one of the most fertile and actively commercial of the vilayet of Aïdin, the neighbouring plantations of Deirmand-Jik producing the finest figs of the whole province. In antiquity this plain, even more productive, was the source of immense activity, all the busy commerce plied between Ephesus and Miletus on the coast and inland converging by the high road at a point where in the past existed a great city, now marked alone by a mass of scattered ruins which lie near the hamlet of Tekke. Various have been the theories as to the identity of these remains. Hamilton was the first, so M. Rayet tells us, to suggest that this was the site of the city of Magnesia, a view adopted also by Leak and Rennel in their works on Asia Minor.

The ruins of Tekke are not, however, those of the first city, which was built in the plain, and which bore the name of Magnesia. The older city was abandoned as incapable of being defended, in the middle of the fourth century before our era, and the inhabitants moved to the spot where now lie the chief mass of the ruins. Long used as a convenient quarry of ready-made building materials, centuries of pillage still leave these ruins of more than usual interest. Although in part described by most of the travellers to this portion of Asia Minor, the first trustworthy information is to be gathered from the drawings and notes of the French architect, Huyot, who visited Magnesia as far back as 1820, accompanied (a point of special interest to our readers) by two enthusiastic young students, M. Dreux and a veteran past-President of the Institute of British Architects, Professor (then Mr.) Donaldson.

The drawings and notes then made were purchased in 1841 by the French Government, and they now repose in the MS. department of the National Library. They comprise a plan of Magnesia, together with others of the stadium, the theatre, the gymnasium, the thermes, and, finally, a panoramic view of the widely-scattered ruins,—an interesting drawing, which is reproduced in the atlas that accompanies the second part of the work of MM. Rayet & Thomas.

More important explorations were undertaken in 1842 by M. Texier, with the help of the French Government. Fever, however, was added to the many other difficulties, and little work was sent home; but M. Texier has described the expedition in his work on Asia Minor. It is only to be regretted that the plans and drawings of M. Clerget, an architect who accompanied the expedition (and who fell a victim to the fever), were not published. As a more recent authority, we have M. Tremaux's work on an archæological exploration in Asia Minor, published in 1874.

Scattered among the reeds that cover the site of Magnesia may be seen a number of dislocated blocks, which doubtless show the line of the city walls. The space which this line confines is considerable,—some 1,200 yards from east to west, some 900 yards from south to north,—a space which, even at the height of the prosperity of the town, it can scarcely be believed can have been entirely covered with houses and public buildings. On the heights few remains have been found; but on the slopes the relics unearthed point to the existence of a large population; the ruins of the principal monuments all lie in the lowest portion.

The most important and most imposing of these is a large rectangular enclosure, some 200 yards long and about 150 yards broad. The walls remain, and show several of the secrets of their construction; the whole interior can be seen. M. Clerget, it would appear, prepared a number of plans for their restoration, and among the illustrations of M. Rayet's work we are promised the reproduction of some of the more important of these. It would appear also that this enclosure is no less than the sanctuary consecrated to the great divinity of Magnesia,—to Artemis Leukophrunē, one of the variations of the lunary, and, at the same time, a prolific goddess, who occupies the most important place in the religion of Caria, and of which the Artemis of Thebes is the best known type. A number of coins are reproduced by M. Rayet in support of this theory.

Among the other remains of the town of Magnesia few have escaped the reckless hand of man. Huyot, in 1820, observed more than one ruin of which no trace now exists,—notably the conjectured *agora*, of which now not a vestige remains. Near the *odéon*, to the south of the *agora*, was the theatre, of which Huyot gives us an interesting view; other ruins that may be those of the thermes, and, not far distant, probably those of the *stadium*, and near these the presumed gymnasium, are all that speak of the past magnificence of Magnesia. The texts of the ancient authors point to the existence of numerous other monuments in the past: the Temple of Athene, the important tomb of Dionysius, the Temple of Zeus Sosipolis, with many others.

As for the history of Magnesia, those who may be interested in learning the story of the rise, the development, the golden days, and the decadence of this once important city, will find it ably told at length by M. Rayet in the several chapters which close the second number of his work. Bulky notes refer the reader to the authorities quoted, while a number of interesting and beautiful coins figure as further original documents of reference and corroboration. In these chapters we can trace the whole history of Magnesia, from its Greek origin to its subjugation by the Persians (Themistocles governed Magnesia for many years under the Persian rule, and it is almost certain that the so sadly ill-treated general died in the city), through the period of its existence under the Macedonians. Already in the third century before Christ it would appear by Polybius that figs formed the staple of commerce, as Zeuxis, the general of Antiochus, we learn, was victualled by the Magnesiates with "dried figs"—down to the day when, in the second century (109 B.C.), Magnesia saw under its walls the casques and bucklers of a Roman army under the command of Manlius Vulso. The last information to be gathered of Magnesia must be sought by the aid of the numismatist; and the documents which the coins of Magnesia supply are numerous. The activity of its mint shows, indeed, how long the town continued to be wealthy and prosperous. At the commencement of the Byzantine empire it still existed as the seat of a bishopric. The decadence began when the disastrous wars waged with the Greek empire, in the first place by the Persians, then by the Arabs, and finally by the Turks, obliged the inhabitants to withdraw to a stronger fortress. Magnesia, difficult of defence, was entirely abandoned, as in its ruins not a vestige has been found belonging to the Middle Ages.

The illustrations that accompany the second part of M. Rayet's work are no less interesting than those which show us the antique city of Tralles. To Magnesia is devoted a fac-simile of M. Huyot's sketch of the ruins, taken in 1820, together with a number of beautiful photo-gravures of the bas-reliefs from the Temple of Artemis, and a view of the existing state of the site.

The third part of the work of MM. Rayet and Thomas, and which has only very recently made its appearance, deals with the description of the explorations of Priene, being almost entirely devoted to the Temple of Athene Polias. Priene, which lies on the northern shore of the Gulf of Latmos, is now marked by a village situated far inland, the hamlet of Samsoun. Priene has been visited and explored more than once. In the last century Chandler and Revett, who had been sent to Asia Minor in 1765, by the Dilettanti Society, visited Priene, of which they have left an interesting account and a view, with details, in the first volume of the "Ionian Antiquities." As for the somewhat more recent explorations of Mr. Pullan (of Halicarnassus memory), they are familiar to the profession.

Almost in the centre of the site of the antique city rises, amidst the scattered ruins, an eminence of elliptical form. To the north and east the approach is gentle; to the west and south it is abrupt; at its feet lie the *agora* and the *stadium*. It was this eminence, visible from a great distance, that became the site of the sanctuary of the protecting goddess chosen by the Prienians, the blue-eyed Athene Polias. Chandler and Revett, who first explored the temple, have left us a view, and some important architectural details; but it was not until a century later (at the end of 1868) when the same Dilettanti Society sent out Mr. Pullan that the temple received the careful attention which its artistic beauty merited. It will be probably remembered by many of our readers how easy the first operations were; the earth covering the ruins being rapidly removed, before the end of the same winter the ruins were cleared. The bas-reliefs and architectural details discovered by Mr. Pullan having been presented by the Dilettanti Society to the British Museum, the indefatigable Mr. Newton visited Priene, in company with Mr. Murray, in order to make his choice of and attend to the transport of the precious relics. The specimens he sent home are familiar to us all.

Unfortunately, as M. Thomas points out, the explorations of Mr. Pullan only hastened, after his departure, the destruction of the interesting monument. Priene, like Magnesia, became an excellent quarry of ready-made material, and M. Thomas, in speaking of the ruin worked by the worthy natives of the neighbouring village of Kelebech, refers to an anecdote of Mr. Oakley Clarke finding in 1870, at the foot of the wilfully-broken pedestal of Minerva herself, a beautiful coin, a tetradrachm of Orophernes II., king of Cappadocia.* The news of this "find" spreading, unfortunately increased the destructive zeal of the inhabitants, though several other coins were brought to light.

In spite of these successive and destructive onsets, Priene still presented in 1873 remains of great interest. While the explorations at Miletus were being continued, M. Thomas paid a first visit to Priene, and in the following year our two

* See *Builder*, p. 3, *ante*. "Milet et le Golfe Latmique: Tralles, Magnesie, Priène, etc." Par Olivier Rayet et Albert Thomas. Parts II. and III. Paris: J. Baudry. 4to. 1880.

* To Mr. Clarke, mentioned at this point by Rayet, a heart-felt tribute of gratitude is expressed for his kindness in rendering him and his companions not alone his friendly assistance, but the deeper obligation of kind attendance during a severe fever.

authors were able, in company with Mr. Newton, to study in detail at the British Museum all the fragments carried to our shores. It is by this means that have been gathered the documents and authorities by the aid of which have been executed the restorations of MM. Rayet and Thomas. In a series of sub-divisions the various portions of the temple are considered.

It is to about the year 312 or so before our era that can be attributed the dedication of the temple. Long before 334 the plans of the edifice must have been settled and the erection commenced. The Greeks, M. Rayet at this point remarks, never urged, as far as have done the moderns, the search after originality. Art with them never strayed into bye-paths, but followed a perfectly regular march. This was especially the case with architecture, submitted by its very nature to positive necessities and to mathematical rules*. The architect of the temple was Pythios, mentioned by Vitruvius. Pythios, we learn from various sources, gained from the erection of this temple a great celebrity. We know also that, as we find in the case of many other Greek architects, he had shown in his Commentaries the merits of his work. In this work he sustained a singularly ambitious theory on the extent of the learning necessary to the architect; he further declared open war against the Doric order, the proportions of which were, he asserted, faulty and ungainly. Putting into practice his theories on the universality of the learning necessary in his profession, Pythios was not alone an architect and a writer; if we are to believe Pliny, he was also a sculptor, and it was he who executed the colossal chariot in marble placed at the summit of the pyramid of the Mausoleum, and of which the statues of Mausolus and Artemisia remain almost intact. This union of the talents of sculptor and architect, remarks M. Rayet, was not rare in antiquity, for, at the same epoch, Scopas offers us another example.

To attempt to summarise the description of the temple which M. Rayet's colleague, M. Thomas, has so learnedly and technically entered into, is beyond the limits of our space. Those who may be interested in further research into the subject will find in this third part of the work of MM. Rayet and Thomas a number of well-classified and illustrated details. Of the various parts of the temple of Athene Polias; the *temenos* paved with marble slabs, the rectangular flat form on which rises the edifice; the *secos* divided into its three portions, the *pronaos*, the *naos*, and the *opisthodomos*; of the many columns of which the bases remain, only one capital exists, and that is mutilated; another, it will be remembered, is now in the British Museum. In describing the walls of the *secos*, M. Thomas speaks of the perfection of their workmanship, which is carried, he states, as far as in any of the monuments of Athens. The stones do not adhere to each other on their whole breadth; but only on a bed of about 4 in. all round the outside, the central portion being hollowed and roughed. By this means joints which are almost invisible were obtained, at the same time that the surface in contact was sufficient for solidity, this being further insured by a double system of metal fixings binding the blocks together, horizontally and vertically.

A short notice is devoted to the fragments of sculpture discovered in the ruins; those belonging to the colossal statue of Athene found by Mr. Pullan were sent home to the British Museum, and other sculptures were found, but it is not certain from what part of the edifice they come.

To the polychromatic decoration of the temple M. Thomas devotes also some attention, for, as he states, no one can now deny that colour played a great part in the decoration of the Greek temples, though perhaps the general tendency has been to somewhat exaggerate this part. The ruins of Priene offer to the student of classic polychomy several points of interest; on several architectural members have been found coats of perfectly preserved colour, which appear in all their brilliancy when scraped. Three facts may be deduced from the researches, firstly, that those portions where no trace of colour has been found were never painted; secondly, that the colour was only applied on the ground and hollows of the mouldings, the sculptured portions, and the caissons; thirdly, that two colours only were employed, a dark red (cinnabar) and a light blue (silicate of copper), the same colour used in the decoration of the Propylæa at Athens.*

A series of carefully-drawn details, beautiful in their exactness, together with several plates of learned restorations by M. Thomas, illustrate the number of the work devoted to the Priene explorations. One plate gives coloured details of the capital and base of the columns of the *pronaos*; the other plates, that form the "atlas" of the second and third numbers, illustrate the explorations at Miletus and Didymus, of which, however, the accompanying text has not yet appeared.

In England, the portion that deals with the Priene ruins will be read, perhaps, with the most general interest, as we have in our British Museum so many precious remains of this interesting Temple of Athene Polias, so beautiful a model of Ionic architecture found in Ionia itself. The book of MM. Thomas and Rayet will form an almost complete guide to the possessions from this country and this epoch contained in the European collections, a work only the more welcome and the more valuable to archæologists and artists as the explorations of Mr. Pullan had remained so far unpublished.

* M. Rayet further classes the successive evolutions of Ionic architecture in Asia Minor from 350 B.C. to about 200 in the following order:—First, the Temple of Priene, and the mausoleum of Halicarnassus; second, the Temple of Ephesus; third, the Temple of Didymes; and lastly the Temple of Magnesia.

* A cake of this colour was found in the necropolis of Camiros, and is now in the British Museum. Later on the colour was made in large quantities at Alexandria; and finally, in the first century B.C. at Pozzuoli, Vitruvius has described its preparation (vii. 11).

THE TAY BRIDGE REPORT.

A FULL, clear, and definite report has been presented to the President of the Board of Trade by Colonel Yolland, R.E., and Mr. W. H. Barlow, C.E., on the causes of the destruction of the Tay Bridge. When we consider the numerous instances,—not to say of the miscarriage of justice,—but of the mode in which legal technicalities have of late been found to be so involved as to set in one place judge against judge, and in other cases judicial decisions against public policy, or even against common sense, it is with some satisfaction that we call attention to a case in which a definite outcome has resulted from an inquiry into engineering facts. Nor is our satisfaction any the less, because the reporters have taken precisely the view that we indicated in these columns on the first occurrence of the catastrophe. "With iron work and bracing of sufficient strength in all their parts, held down by strong bolts bedded deep in the solid mass of the piers," say the reporters, "there is no doubt that the caissons are wide enough to permit of piles being constructed adequate to perform all the duty required." The evidence of a competent witness is cited a little further on to the effect "that if the columns had been strongly braced, strongly fitted, and strongly held down by holding-down bolts, the piers would have been standing now."

There is one, and we think but one, feature in the report which we hold to be liable to objection, or, at all events, to question. That is, that either of the engineers who were consulted as to the design of the bridge should have been asked to act, and should have acted, as reporter. This is against the general rule in such cases, and might have justified a challenge of the arbitrator (for such he virtually was) on the part of the engineer of the Tay Bridge, assuming that Mr. W. H. Barlow, F.R.S., is the Mr. Barlow spoken of in both cases. But while we hold that there is a certain weight in this objection, we do not see that any great practical difference can have resulted from the nomination of a man of the deservedly high reputation of Mr. Barlow. At all events, there has been no blinking of the fact. The report is quite candid on the subject. But it puts the reporters on their own defence, which is, we think, somewhat to be regretted.

Mr. Barlow and Dr. Pole, being asked to carry out the investigation of the atmospheric or storm pressure against which it was necessary to provide in the case of the Tay and Forth Bridges, consulted the Astronomer-Royal. Sir G. Airey replied that "We know that in very limited surfaces, and for very limited times, the pressure of the wind does amount sometimes to 40 lb. per square foot; or, in Scotland, probably to more." This is the positive evidence, furnished by an experienced physicist; and was the basis on which calculation should have been made. Sir G. Airey goes on to say that positive knowledge, as far as he is aware, goes no further, but that these high pressures are momentary, and, he adds, "I think we may say that the greatest wind-pressure to which a plain surface like that of the bridge [the Forth Bridge] will be subjected in its whole extent is 10 lb. per square foot." This, it must be noted, is given as opinion only, while the pressure of 40 lb. or more is given as matter of fact. In this opinion, even after what has occurred, we are not wholly disposed to disagree with Sir G. Airey. At the same time, the expression used is one very liable to mislead, and which, in point of fact, has, we think, misled those concerned. No engineering or architectural calculation depends on the estimate of what would be the greatest wind-pressure, at one time, over the whole extent of the bridge. The information required for structural purposes was,—what is the greatest pressure which, at any moment, can come on a single bay? No matter how momentary the pressure, that is the maximum that we seek to know. And, if there is no evidence as to how limited the area of highest pressure for the moment is, no one would be safe in taking any diminution of that pressure over the whole surface of one bay, in calculating that against which the engineer was bound to provide. Thus, as far as the weight of the advice of the Astronomer Royal goes, no engineer, we think, would have been justified in disregarding the probability that a side pressure of more than 40 lb. per foot might come on any single bay of the bridge. But Messrs. Barlow and Pole reported upon this,—"We may, therefore, safely adopt 10 lb. per square foot as side pressure." That is quite another matter. We think that on one side the Astronomer Royal, and on the other hand Sir Thomas Bouch may justly demur here. We do not understand the former to have given an engineering opinion as to the proper strength of the bridge, though he gave data by which a cautious engineer would, we take it, have been induced to allow at least 50 lb. per foot of resisting power. Had that been done, as far as the evidence on the trial goes, the bridge would have been now standing. But the report of Messrs. Barlow & Pole converted this maximum pressure of more than 40 lb., and this general pressure of 10 lb. over the whole extent of the bridge, into an allowance of 16 lb. per square foot *over the bay*. Sir J. Hawkshaw, Mr. Bidder, Mr. T. Harrison, and Mr. Barlow signed the report adopting these conclusions. That the conclusions were wrong let the facts tell. That they were not the true outcome of the facts stated by the Astronomer-Royal, we think is indisputable. It is an instance of the disadvantage of forming an opinion as to physical facts upon evidence collected for other purposes, and in other branches of inquiry. If the eminent engineers whose names are attached to the report had collected their own facts, it cannot be for a moment supposed that they would have thought 16 lb. per foot a proper allowance for storm-pressure. If Sir G. Airey had had to build the bridge, it is pretty certain that he would not have been satisfied with such a margin. But as far as Sir Thomas Bouch is concerned, he has a very strong case for insisting that an allowance of 16 lb. per foot was that considered adequate by four of the first engineers of the day. The partial embarrassment of the reporters is to be read in the paragraph,—"It must not be understood, however, that we express an opinion as to the sufficiency of a provision for only 10 lb. of wind-pressure in a large span of 1,600 ft. . . . Two or more gusts might act simultaneously on so large a span, or there might be a wind-gust of unusual width." No doubt; and no doubt that not only this might have been, but was, the case. The point which, in common justice to a gentleman who has quite enough responsibility on his shoulders, as it is, to demand the most fair and liberal allowance on the part of his judges, is this. Is it fair or just to say in one breath,—"We may, therefore, safely adopt 10 lb. per foot as the side pressure," and to add, "We think Sir T. Bouch must have misunderstood the nature of that report, for, as it pointed out that the pressure of gusts of wind amounted to 40 lb. or more, it was obviously necessary to provide for the pressure so arising *in each of the spans of the Tay Bridge*"? That all along has been our contention. We hold that it is indisputable. It has been confirmed by the terrible logic of facts. But it is rather late in the day for a reporter who wrote, "allowing, therefore, 16 lb. per square foot," now to say that that allowance ought to have been trebled,—that is, to say so after the fall of the bridge.

We, therefore, feel that Sir Thomas Bouch has a fair claim,—if it be the case that he provided for 10 lb. or for 16 lb. pressure on his girders,—to share that responsibility with Messrs. Hawkshaw, Bidder, Harrison, and Barlow; and we feel confident that most impartial persons will admit the force of this plea in mitigation.

Passing over this difficulty,—which ought to have been avoided,—we come to the conclusions of the reporters. These are,—(1) That there is no evidence of any movement of the foundations of the bridge; (2, 3) that the iron used was of fair, though not of the best, quality; (4) that the girders were of sufficient strength; (5) that the piers, though adequate to support the vertical weight, were not sufficiently substantial or sufficiently braced, their great height being borne in mind; and (6) that their workmanship and fittings were inferior; (7—11) that the inspection of the bridge was not what it should have been, and that the speed allowed over it was too great; (12) "that the fall of the bridge was occasioned by the insufficiency of the iron bracings and fastenings to sustain the force of the gale on the night of December 28, 1879, and that the bridge had been previously strained by other gales"; (13, 14, 15) that the first set of continuous girders, covering four spans, were the first that fell, after the engine and train had passed over the fourth pier.

The reporters agree with us in the view that the evidence does not support the hypothesis that the carriages left the rails, and struck the girders, thus causing the fracture. They conclude with a paragraph which is of great importance, both as illustrating what we have before urged as to the comparative ease with which an event can be predicted,—after it has happened,—and as embodying the one practical outcome of a very extended inquiry.

"In conclusion, we have to state that there is no requirement issued by the Board of Trade respecting wind-pressure, and there does not appear to be any understood rule in the engineering profession regarding wind-pressure in railway structures, and we therefore recommend that the Board of Trade should take such steps as may be necessary for the establishment of rules for that purpose."

Unfettered by any antecedent expression of opinion, Mr. Rothery has spoken more decidedly as to the defects in the design and construction of the bridge. We wish that we could find more room for modifying his conclusions than we have above indicated. His reference to the allowance of 55 lb. in France, and of 50 lb. in the United States, for wind-pressure is most striking. His remarks as to the *quasi* responsibility of the Board of Trade are very just, and we cannot but assent to his opinion that it is rather for the Royal and civil engineers of Great Britain to investigate the important question of the pressure of the wind, and to frame rules for providing to resist it, than it is for them to pray to Hercules in the sanctuary of the Board of Trade.

ETRUSCAN-GREEK VASES AND THEIR TEACHINGS.

IT would be very difficult to find a subject of more or higher art interest (educationally) than that of the rise and fall of so famous and individualised a country and race of men as ancient Greece and the Greeks, from their first beginnings to their ultimate decline and all but extinction as a separate nation. Looking at the Greek and his doings when in his prime, and when he filled so finely-marked and conspicuous a place in the history of the world, it would seem hardly to be within the bounds of possibility that he should ever disappear and cease to be, or that what he did in the world of fine art could come to an end, or in any way die out and be no longer produced. But so it has been. Much has been thought and written on this fine theme, but the subject will admit of much more, for there are aspects of it but hitherto little more than glanced at, and it is to one or two of these that we would now call a moment's attention, as there would seem to be a chance of our seeing in both our national museums—the British Museum and the South Kensington Museum—much larger spaces devoted to the exhibition of what remains to the world, after so many ages of neglect and forgetfulness, and the loss of so much of the past art of it—of its architecture, and sculpture, and drawings, and through them of its antique methods of work.

Pending these further opportunities of increased insight into a matter so far from the present of things, we may make a note or two on the singular fact in the days that are gone by always to be found in the old art of the world,—birth, growth, however gradual, and final extinction and death. In the Greek work of which we are now speaking there was no copying of previous forms. All would seem to have been a gradual, though slow growth from the archaic to the more perfect and advanced and matured art, and then a gradual,—however slow,—decline, quite as marked and singular as its rise. In a well-arranged and carefully-selected series of illustrative fragments of Greek architecture and sculpture, this would, we cannot but think, become sufficiently manifest, and we should see within moderate compass how this all but perfect art of the Greek began, grew up to maturity, and then died out. Indeed, as it is, we may see this, though imperfectly, in the fragments, as they now are, in the British Museum, but even, as we think, more perfectly and emphatically in the Vase-room, where can be seen a series of Greek art works from the earliest and most archaic, down to the decline, if not final extinction, of the handiwork and thought of the Greek artist and Greek workman. It would be difficult to find a better illustration of the art of the Greek, or of his mode of work in the realisation of his thoughts as an artist. It is, indeed, a magnificent collection, and its increase in the future is to be desired.

In this Greek or Etruscan room may be found an instructive series of art thoughts and works of the Grecian mind and hand,—of works thoroughly indicative of the tone and special character of the Greek as an artist and art-workman. And we would almost urge the study of them before that of the work in the more solid and enduring marble. The Greek fictile art, as it is termed, has been broadly divided into three distinct and broadly-marked "periods," quite distinct from each other, though, as we have said, no hard line can be traced between them, each distinct phase of the one running insensibly into the other. It is a progress from first to last, and a growth, and then a decline, as in the artistic powers of any single individual artist. In these Greek, or as they are more popularly termed, Etruscan vases and amphoræ, this will be seen at all but a glance, and, what is perhaps as instructive, we may see depicted on them the forms and faces, and all but "manner" of the race of men who produced them, and afterwards made use of them. They were, it is to be noted, not made for mere show, and as objects of ornament, and to be looked at merely, but as objects of practical utility and daily use. And thus it is that they are of so infinite a service, educationally, as showing that the mere utility and common daily use of an object did not blunt, in the Greek mind, the necessity and feeling for the impress of beauty on it, and at times even more than this. A Greek school of art is, indeed, here.

We forbear to catalogue the several names by which these so admirably-designed vases were known. Their general and leading outlines and forms can best be seen and appreciated by the sight and study of them in the Vase-room of the Museum itself, but we may well point to the fact of the several forms and outlines having some special relation to the special purpose for which each form or outline of vase, or calix, was intended, and for the way in which it was commonly intended to be held and carried. This is most instructive, and tends to show that nothing escaped the notice of the Greek artist-workmen. They looked not only to the form of the object designed, and to its special fitness for its purpose and wear, but to the way in which it must needs be seen, and to the impression made by it on the eye of those who must needs see it in daily use. Indeed, it may fairly be said that not only the forms of many of these vases, but their very method of ornamentation, could only have occurred to those who designed and ornamented them with all this in constant view. And thus we cannot but think this is well worth noting, and might lead, if carefully thought out, to much that would be novel and suggestive in our art-schools and schools of design, and especially in any, if there be such, where the work done, as educational work and training, has this element of beauty inculcated, by the side of the first and prime one of utility.

There are so many items to be noted in this all-but complete illustration of Greek art and art-workmanship, and even ways of Greek life that we hardly know what to first urge on the attention of those who regard Greek art as the climax of art strength. In its first and instructive beginnings, in its archaic days, and when the Greek man first got to be an artist and an art-workman, it would seem,—as in these vases and amphoræ and other forms is seen so vividly,—he commenced with the very rudest and simplest of forms, in the most archaic way possible, with some "markings" on the moist clay, with lines, crosses, waves, chequers, and the rudest of line arrangements, much ruder, indeed, than much of that to be found in the work of the South Sea Islanders and other savage tribes of men, and, with what is most noteworthy, and not so much taken into account as it might be, with what are evidently rude imitations of wicker work, the art-mind of the rude artist-workman being evidently struck, all the wide world over, with the regularity and beauty of common basket and wicker work. Here we see it in all its phases, and with,—what is so instructive to note,—that peculiar feeling and *modus operandi*,—feeling peculiar to the Greek mind and method of hand work, to his "style" of workmanship, so evident in all he has, from first to last, attempted. It is not the wicker pattern of the South Sea Islander, but of the Greek, though copied, or the idea taken, from the very same object.

But he has done here as all the rest of the world have done in their earliest beginnings. He could not but attempt the copying and the effort to represent the living forms of the animal and vegetable life about him. These animal forms are but now and then introduced, and the forms are rude and grotesque. But there they are. And it will be found that at times a really great artist, though so rude and untutored, has done the work; for the vigour and life and strong action of the animal represented might well put to shame not a little of the same kind of work we see round and about us. Some of these rude vases here are difficult to get good sight of; but the power displayed in their forms and in the drawings on them can hardly in any case be missed. The more closely and attentively they are studied, the more impressive they become, and the greater is the lesson to be learnt from them; for they show us what the special character of the Greek was, and how emphatically he, in this archaic work, prophesies of himself what he would in the future do. We see, too, here in this primitive and archaic work rude representations of the Greek himself and his costume, and much of his way of life and manners, and, more than all, perhaps, the form and contour of his features; and none can doubt that in the later work, and in the more advanced work of the first period, as it is termed, we see simply the successors of the rude men of the archaic age.

How much might be written of the great art of the period which followed this archaic work we need not say. It will best be studied together with the examples of the later work which follows it, and which, in its way, is fully as interesting and instructive; for the decline and final ending of a great style of art, as of a great people, is as impressive and as full of lessons as the early commencement of it and its perfect development. Quite sure dates would be not a little valuable here. The archaic work is believed to have commenced with the beginnings of Greek civilisation, as so-called, and the date of the final ending of Greek vase-painting is thought to be about the year 100 B.C., when probably some other and a foreign art took the place of it. We fear that this final phase of the Greek handiwork is not quite so much attended to, or represented, as it deserves to be; for, as we say, the decay and the ceasing to exist of a great style of art are as interesting and momentous as are the beginnings of it. All things, it is true, are born but to die, and to give place to what we are told is a something better, and better adapted to the wants and aspirations of a new age and new men. But the past is ever instructive, as here seen, and the passing away of a great style of art is certainly not the least instructive lesson to be learned from the study of it through all its phases. Through this fine collection of Greek art-work we may have yet a fair insight into old Grecian life and ways of work.

Mr. William Thomas Wiseman, of Cromwell House, Brixton, Surrey, agent for some of our large Kent brick manufacturers, has been elected a vestryman for Lambeth.

THE ACTUAL STATE OF THE INDUSTRIAL ARTS IN GERMANY.

AN addition has recently been made to the number of French artistic publications by the appearance of a new monthly magazine, *The Review of the Decorative Arts* (*La Revue des Arts Décoratifs*). The new periodical sees the light under favourable circumstances. It is intended to serve as the monthly report of the "Society of the Central Union, applied to the Fine Arts," and the recently-founded Museum of Decorative Art. Judging by the first number which has made its appearance, the new publication will supply an evident need.

Unpleasant as the truth may be to the mass of the French people, thoroughly satisfied as they are with the reputation for artistic superiority which they have been accustomed to receive till now, to the more thoughtful the recent international exhibitions have shown the value of this superiority, which they find France is slowly losing. The Union Centrale was founded many years since to save France from continuing on the downward slope in her artistic products, and the aims of the more recently formed Museum of Decorative Art was a further step in the same direction. As a first move the managers of the two societies have felt that it was necessary in their magazine to have a series of good reports on the state of the artistic industries of foreign rivals, and in their first number has appeared an article of more than usual interest on the state of the industrial arts in Germany. The subject being one which interests no less warmly a large portion of the British public, and hence many of our readers, an epitome of the article may, we trust, be acceptable. The author, who is a German, Adolf Rosenberg, and who writes from Berlin, possesses, it will be seen, a more than ordinary knowledge of his subject.

It was at the Vienna Exhibition of 1873 that Germany first showed to the world the products of her industrial art, but the result was, as Herr Rosenberg has to admit, far from creditable. To explain the inferiority of his country, the author takes us back to the various political crises through which Prussia had to pass. The Thirty Years' War (of the seventeenth century) dealt perhaps the cruellest blow, not alone in severing all the bonds which connected the past with the present, but in checking all artistic, literary, and scientific effort throughout the country. The renown of the sixteenth-century masters of Nuremberg and Augsburg seemed forgotten, and the few works of art which escaped from the ravages of the war went to seek a refuge in the locked-up collections of princes, or in private houses, where they have remained till the present hour.

With the close of the Thirty Years' War Germany was powerfully influenced by France, and this influence can be traced down to the fall of Napoleon. From this moment may be dated a new revival of the arts, due to the renowned architect, Charles Frederick Schinkel, who composed a new system of architecture founded on Greek models. Berlin was metamorphosed under his influence. But it was not alone the architecture of his time that Schinkel's teachings affected; the industrial arts received from him a large share of attention. The numerous models that Schinkel designed have served for forty years and more to the manufacturers, while pupils of the master have further popularised his style.

At the time that Schinkel formed his grandest projects for the embellishment of Berlin the knowledge of Greek architecture was not so extended as it is in the present day; it was almost solely confined to the temples of Greece. "It was difficult to compose from such sources a domestic architecture which should satisfy the varied exigencies of modern existence and a climate so different from that of Attica; it was even more difficult and more dangerous to seek a fund of decorative elements for the industrial arts from the artistic treasure-house of a nation whose mode of life had scarcely a point in common with that of the present. With the exaggerated imitation of Greek forms, the façade of a temple was made to serve as the ornament of a stove, the system of metopes and triglyphs as the entablement of a chimney-piece. But what was more to be regretted was the aversion of the architects who designed the models for the manufacturers for positive colours. This aversion was only fostered by means of an error, the refutation of which we owe to very recent discoveries. The Greeks were no enemies to the use of colour, as Schinkel and his pupils believed, but, on the contrary, the partisans of a system of colouring which extended over a large portion of their edifices, and which the Italians of the fifteenth and sixteenth centuries revived." Herr Rosenberg concludes that Schinkel, in spite of his merit, cannot be said to have exercised a favourable influence on the industrial arts of his country. None of his successors inherited his prolific genius, and after his death commenced a period of stagnation which from day to day can be traced in its extension, till at length "the great industrial exhibitions revealed to the world the inferiority of Germany in the industrial arts."

Vienna Herr Rosenberg mentions as showing its superiority in the art of the goldsmith; but everywhere the classic traditions were being broken with, and a return made to the industrious period of the sixteenth century. Munich, Berlin, and Stuttgart became the centres of this new movement, the first results of which were shown in the Munich Exhibition of 1876. The *Kunstgewerbeverein* of Munich (Society for the Encouragement of the Decorative Arts), which celebrated during the exhibition its half-century jubilee, held in the front rank of its aims the revival of the style of the "German Renaissance." These efforts were continued by the treasures of the National Museum of Munich and that of Nuremberg, where in 1872 was founded another museum devoted to the industrial arts, the "Bayrische Gewerbemuseum," where are held exhibitions of modern work. Munich, as Herr Rosenberg truly remarks, remained after the triumph of her exhibition "the devoted champion of the style of our ancestors." The "*Kunstgewerbeverein*" has built an important edifice entirely in this sixteenth-century style. A permanent exhibition shows the most recent products of the industry of Bavaria and the other parts of the German empire.

The publishers aided in this movement towards the Renaissance. In 1877, Herr George Hirth, a scholar and publisher, produced under the title of "Der Formenschatz," a collection of drawings, sketches, and studies to serve as models to the trade and the designers. To attain this end the price of this collection is made very small. Another publication, by the same author, and no less instructive, "Das Deutsche Zimmer der Renaissance,"—the German room of the Renaissance,—endeavours to show the elegance and charm of a house embellished with art and furnished with taste. Herr Hirth has taken from Holbein, and the other masters of the sixteenth century, a large number of models, to which he has added reproductions of the furniture and stuffs of the period. German artists are not the sole authorities; the East, the looms of the Gobelins manufactory and Flanders; French pottery and Italian majolica, are all laid under requisition.

To the Munich Exhibition many excellent results may be traced. Its success led to the foundation of numerous schools and societies throughout Germany. In 1876 schools were opened at Breslau and at Dresden, to which has been added a museum, as also the school of Leipzig. The following year Münster and Pforzheim (in the Duchy of Baden) were supplied with excellent schools, the latter especially devoted to the goldsmith's art, which has left ancient traditions in the town. The most recent foundation is the industrial art-school of Frankfort-on-the-Main, opened in October of last year under the direction of the architect Luthmer, whose efforts in favour of the industrial arts have long made his name respected in Berlin. We owe to Luthmer a large number of compositions for the jeweller and the glass-worker, and in addition an invaluable publication on jewels, the elements of which are gathered from the pictures of the sixteenth century, or copied from the originals preserved in the German courts.

There are now sixteen industrial art-schools in Germany; in addition to those above mentioned there are schools at Berlin, Cassel, Dantzig, Erfurt, Hanau, Königsberg, Magdeburg, and Mulhouse. But further details will be found in a recently published manual, "Statistisches Handbuch für Kunst und Kunstgewerbe im Deutschen Reich. 1880. Weidmann. Berlin." (Statistical Manual for Art and the Industrial Arts in the German Empire.)

Herr Rosenberg is warm in his commendation of a further innovation which marked the Munich Exhibition, that of having apartments closed in on three sides, and provided with a ceiling intended to show completely the effect of the application to interior decoration of the Renaissance style. The success of these full-sized models was repeated at Leipzig and Berlin in 1879. Herr Rosenberg attributes to their introduction a complete revolution in the style of interior decoration.*

The architects of Berlin, in Herr Rosenberg's opinion, are much more cosmopolitan than their brethren of Munich. "They have studied the French and Italian Renaissance with the same zeal as the German Renaissance, and it is particularly the Italian forms that they have preferred. The painters, sculptors, and cabinet-makers work under the direction of the architects, who deserve credit for the impulse they have given to our industrial arts, and who furnish designs for the goldsmith, the glass-painter, the weaver,—in fact, for all the branches of industry directly dependent on art."

This almost exclusive predominance of architecture has, it cannot be denied, continues Herr Rosenberg, its inconveniences. As the greater number of the architects are often incapable of drawing the human figure,—an incapacity which arises from the insufficiency of the education they received,—they only too often entirely neglect the figural element in the conception of their sketches, confining themselves to arabesques and foliage. When it is recalled what an important part was played by figures in the industrial arts of the Renaissance, either as supports for the architectural portion, or as symbolising some profound idea, or representing some allegory, or to animate in a lively manner the architectonic lines, it is, indeed, to be regretted that they should disappear in the new system of ornamentation. But the efforts applied to the regeneration of the industrial arts are of too recent a date to produce as yet any definite result. We have, as it is, every reason to be pleased with the sufficiently high position which the German industrial arts have succeeded in attaining in so short a period as the last seven years, and much may be hoped for in the near future, as the impulse given in this direction is far from having ceased in its effect.

To show how universally the Renaissance has seized hold of the artistic world in Germany, Herr Rosenberg mentions how, in the Berlin Exhibition of last year, besides twenty exhibited examples of rooms furnished in the Renaissance style, there was only one in the Gothic style, a fact worthy of remark in a country where the art of the so-called Gothic masters produced such treasures of exquisite beauty. Herr Rosenberg strongly approves, nevertheless, the public taste in preferring the Gothic for the purpose of religious decoration. "For private life the Gothic style, venerable as it may be, has little charm. The stiff backs of the arm-chairs are energetically opposed to our modern sense of comfort, and foliage as an ornamentation scarcely flatters the eye by the variety of its forms." In Hanover and Cassel, Gothic is cultivated by several architects of taste and talent, who have tried with success to accommodate its forms and decorative elements to the needs of modern existence; but in general the Gothic, concludes Herr Rosenberg, is only adapted to the building and decoration of churches and town-halls.

Our author refers, in his review of the state of the industrial arts in Germany, to the influence exercised by France on several members of the German aristocracy, who have, in their visits to Paris, been affected by the "style Louis XIV.," but they have been obliged to employ French workmen to carry out their plans. The palaces of the Prince of Pless, at Berlin, and at Pless, in Silesia, may be mentioned as examples of this "hobby," the architect being M. Destailleur.

In 1876 was formed at Berlin a Society for the Industrial Arts. This society, which numbers some four hundred members, patronises openly the Renaissance, a feature in part due to the fact that the greater number of the members, being manufacturers, naturally endeavour to suit the reigning taste of the public. The Museum of Industrial Art, which has been in existence at Berlin since 1867, has likewise succumbed to the popular current in favour of the Renaissance, and the new acquisitions belong chiefly to this period. Founded originally by

* Ernest Wasmuth, the Berlin publisher, has recently produced a folio work containing some twenty-four plates, photographed from the more important of these exhibited interiors,—*salons*, boudoirs, dining and sleeping rooms, &c.

private initiative, the museum and school are, however, submitted to the supervision of the State, which wisely and not too ostentatiously aids by an annual budget in the expenses of the Institution. A recent donation of the State consisted of a rich collection of objects of art from Japan and China. Japanism, remarks Herr Rosenberg, has not left the restrained circle of our art-lovers, and has not as yet, as in Paris, invaded our manufacturing world.

The Government has further wisely patronised the art movement by sending to Italy a painter, a professor at the School, Herr Meurice Meurer. Accompanied by a number of ardent companions, Herr Meurer has copied at Mantua, at Verona, Genoa, Bologna, Padua, and Rome, the ornamental frescos of the churches and palaces which belong to the *cinque-cento*. A large number of coloured studies, containing, as may be imagined, a mass of motives for mural decoration, has resulted from these expeditions, and Herr Meurer has several times had favourable opportunities, according to our author, of applying his studies to the decoration of vestibules, *salons*, boudoirs, &c. Herr Meurer further made, during his residence in Italy, a special study of the glazed terra-cotta tiles employed during the Renaissance to adorn the walls, archivolts, cupolas, &c., of the buildings of the epoch.*

Such, rapidly sketched, concludes Herr Rosenberg, is a statement of the present condition of the industrial arts in Germany, concerning which we are promised at a later date some supplementary information.

THE REFERENCE LIBRARY OF THE BRITISH MUSEUM.

THE readers of this journal have lately heard, in full, particulars of the progress that is being made at the British Museum, and the good work done there has been acknowledged warmly. We would now say a word or two, not of depreciation, but of advice as to changes and improvements that might usefully be made in the *Reference Library*. The ornamentation of the large circular hall in the centre of the Museum buildings is confined to the books and their bindings in it, and which, indeed, make up, to the eye, its very walls. It is literally built up of books, from the floor to the springing of its domical roof, — the very doors being utilised. It has been necessary to divide this wall of books into three stages: the floor of the room, and two galleries above it, thus bringing each volume within ready reach of the hand. The lower rows of books have always, most conveniently, been open to readers, so that any volume below the first and lower gallery can be readily got at and consulted, and we need hardly say how much use has been made of this plan of leaving the books open for the purposes of ready and easy reference. This has, indeed, been found so convenient that it is now the intention of the authorities to open to the public, so we understand, the gallery above, and thus give access to a further range of volumes. It is proposed, we believe, to devote this space, and long length of book-cases, to theological works, thus leaving the lower and ground-floor to more varied and general literature, and we presume to science, and, it is to be hoped, to art and fine art, and, perhaps, it may be, to architecture and building, or at least so much of them as to meet the wants of those who pursue such inquiries and researches. These are at least equal in importance and interest to not a few others here so amply provided for.

We say we hope this fair chance of granting some sufficient space to architecture and art, and fine art, may become a reality, for as things now are these are simply conspicuous by their all but total absence. We hardly dare to go into detail, but we cannot help asking how it has come to pass that so curious a selection of books has been made as that now to be found lining the wall of this great room as works of "Reference," and as handy and world-famous books? May we be pardoned the naming a detail or two? It may, at least, interest the curious in such matters. Ample enough is the store of dictionaries and encyclopædias, but are not many of these now all but, if not quite, obsolete, and without even an antiquarian interest? Of science there is ample show, but still with not a few startling omissions. Science in these latter days is making advances so portentous that no amount of space would seem to be enough for it, or ample enough to fully provide for its fair and due representation, and very many are the volumes here about it, and within handy reach, but there are not a few absent, and world-wide famous ones, too. Mr. Darwin has, if any have, influenced the world of science, but his all-famous book, the "Origin of Species," is not to be found on these shelves, though his book on "Coral Reefs" is, with some others. Surely the books first that have influenced the world of thought, and, through it, of action, should find place.

We hope to be understood. The books we speak of are, of course, in the Museum Library, and can always be had in the usual way, but they are not in the Reading-room as works of ready and constant reference, while there are so large a number of all-but-forgotten tomes; as of some of the "Reviews" from first number to last. Many others are here of but passing or bygone interest, and certainly not to be compared with the great books of original thinkers, or with those books without which the world might find itself somewhat at a loss. Here, again, we must carefully distinguish between the having too much and the having nothing. We cannot but think that the presence here of at least the last year's completed and bound volume of all art reviews and notices of matters appertaining to the art and fine art of the world as it now is, and goes on from year to year, would be a most useful and desirable addition to the shelves of this great Library of Reference. But there is, as things now are, no vestige of anything of the kind; so that what in the past year art has done, with its hints as to what is now at the moment doing, is altogether out of handy and helpful reach. In antique Greek or Roman days, to get sight or idea of a new building one must needs have travelled to the very spot on which it was built, but in these more advanced days we but need to ask for a book in a Library of Reference.

Our main object here, we may repeat, is to hint at some improvement while the alterations and re-arrangements are in progress, especially in the direction of art, and, as we say, of architecture more especially, for it needs some industrious looking for, as things are, to find the word "architecture" at all! A shelf or two certainly would hold all the Reference Library contains of it, useful and necessary as it is, for the world could hardly do without at least "Building." Mr. Fergusson's ever useful "History of Architecture in all Countries," is here, it is true, but Pugin's "Principles" is not, and this book certainly accomplished its work in its day, and called attention to much that was at the time all but forgotten. The "Modern Painters" are here, but the teachings of Venice are not. There need be but small difficulty here, for this very book of Fergusson's, with Gwilt's "Dictionary or Encyclopædia of Architecture" will furnish an ample list of "authorities" from which to make choice of representative and always useful "reference" books. It may be curious, and it is suggestive to note that the great French work on "Egypt" is here, as it should be, with its careful engravings, but M. Leynard's "Égypte et Nubié," with its admirable photographs of the same buildings, is absent, the one being all but a supplement to the other. We might go on. Should not Mr. Penrose's work on the Parthenon be here, as one of reference,—close as it would be, and not a little useful so near,—to the marble remains of the very structure treated of in it?

We thus, however incompletely, would call the attention of those who are rearranging the vast Library of Reference, holding no fewer than some 20,000 volumes, to its present imperfect and apparently accidental assortment of representative books and works of reference, and to the many authorities absent which ought certainly to be ever present. If there be those who think we lament without sufficient cause, let such take up any one world-wide art-subject, as architecture, and make note of what is, and what well might be, and, more than all, make thorough note of what now, as things are, fill these convenient shelves. We cannot fear the result of such examination; the more thorough and complete and exhaustive it is, the better, and the greater the good done, or, at least, hoped for. Of course, the very length of shelving, great as it is, is limited, and we cannot expect all and everything that is needed; but that a great improvement on what now is, and which simply comes from a past and a good-deal-forgotten state of things, should be made, there can be no doubt or question; and that, as we say, not by additions only. The whole subject is, of course, full of detail; each separate book must be looked at if not studied, thus to give it its due and appropriate place. We trust, therefore, that Painting, Sculpture, and Architecture may find a little more room in the future of this great Reading-room.

* Herr Meurer has recently published a portion of his interesting collection, under the title "Majolika-Fliesen der Renaissance" (Glazed Tiles of the Renaissance). Ernest Wasmuth, Berlin.

THE FOURTH SISTER.

WE do not assume that any one is in error; we only wish to keep right ourselves, and in respect to any idea which invites delineation, it is not a bad way to put pen or pencil to paper, and draw it out, to see whether it will bear inspection and examination.

"Decoration,"—what is its just significance? Let us go to its derivation. *Decor* is the original word, from which other Latin forms, as *decoramen*, &c., and our own term, "decoration," &c., are derived; and against *decor* in the dictionary we find the English terms "comeliness, gracefulness, beauty, seemliness, loveliness, a fine mien."

Decoramen is construed ornament. Assuredly we have seen buildings which were no ornament to the city or situation where they were placed, and paintings and pieces of sculpture also we have noticed, which were no ornament whatever, which arose from the fact that they were not good or apposite. Ornament and decoration are not perhaps words of which the significations are identical, but they have, at least, kindred meanings. *Orno* is to adorn, and a work of art, unless it be suitable to its place, as well as beautiful in itself, does not adorn, and is not decorative. A flower out of place is a weed; a weed, in its place, is a flower.

"Decorum" is another word from the same root as "decoration," and in it are implied the right manners, the right person, the right sentiments in the right place. Thus, in this view, it may appear that "decoration" is a term which has a claim to very high consideration, as involving a certain propriety, without which nothing can be really good. When the three sisters,—Architecture, Painting, and Sculpture,—meet together in one structure, it is so important that they should coalesce in harmonious propriety, which they cannot do without the production of decorative unity, that we would intercede for the emphatic preservation of the word "decorative," in its high sense, as we think that such a term is required for such an office, and we see none better than one which is so closely allied to "decorum."

We would submit a group of three sisters,—Graces, if you please,—Architecture, Painting, and Sculpture. They are noble damsels, stately, symmetrical, and sweet. Anon, a little sister, less in stature, lighter of limb, comes on the scene. Caressingly she dances round them, and festoons them with flowers: kneels at their feet, reaches to their shoulders, and stands on tiptoe beside them. Then she waves her wings, for she is a little Psyche, and rises into the air, and floats around them, and crowns them with buds and blooms, and sings to her aërial harp, which she touches daintily, a sweet refrain of harmony and love.

By this little idyll we would image the two-fold significance of this enchantress. In the one view she is the handmaid to her sisters; in the other she rises superior to them all, as the bond of union between them, crowning them with flowers, and weaving their souls together with a hymn of celestial concord.

Behold! she is only a little sister, but she can soar as well as serve, and her name is "Decoration."

THE PORTOBELLO SEWAGE CASE.

SOME time ago we drew attention to the unfortunate circumstances of Portobello, with regard to its being surrounded by the Edinburgh sewage. It appears that the local authority,—the provost and magistrates of Portobello,—have at length taken action in the matter; and last week Sheriff Campbell (reversing the judgment of his substitute) pronounced an interlocutor, finding that the pollution of the "Braid Burn," before its junction with the "Figgate Burn," which runs through Portobello, is a nuisance within the terms of the Act, and must be removed. The case we understand, from its great importance, is likely to lead to further litigation.

THE DONATELLO SOCIETY IN FLORENCE.

ON the 20th of June, M. Leon Gauchez held a conference in Florence for the purpose of setting forth the scope of the proposed Donatello Society. M. Leon Gauchez, a lover of art, and also of Florence, desires to aid the town in the revival of art there, aiming at bringing it to the standard it once occupied. At the present time there exists, one might almost say, nought but imitative art in Florence; the system of the art-schools has not tended to create originality. Exertions are now being made to remedy this defect, obliging the pupils to copy from nature only. M. Gauchez was obliged to acknowledge that "*en fait d'art, l'abilité n'est pas la maîtresse en Florence.*" At this moment Turin has given a grand example in having her exhibition of art this year, and in spite of being deprived of the honour of being the capital of Italy, she has gathered together examples of art not seen in any former exhibition. With this example the society wishes to urge the Florentines to a Renaissance in art in their city on solid bases, that may prove of the greatest possible use to them. Three Exhibitions are to be formed (each having its separate committee): one, of ancient art, for which it is hoped the Government will lend its aid; the second, of modern art; the third, of art applied to industry. The two latter, it is suggested, may be utilised, by lotteries for the sale of the artistic objects exposed, the French Government offering, through M. Leon Gauchez, any aid by the loan of objects acquired in the last exhibition of Paris. The society intends forming a museum, open to the public, of models and works of art that shall tend to the improvement of the professional art-schools, in imitation of that of South Kensington. For this subscriptions are opened, and an appeal is made to the people for a guarantee of three years' subscription or donation,—a sum of 50,000 francs (2,000*l.*) being required before the society can begin its operations. The idea is one which, if realised, may be of immense advantage to the city,—now left so isolated, with so much native talent lying dormant from want of being utilised, and the spirit of making only what will most easily sell pervading every branch of art. The promised Exhibition of Ancient Art of Tuscany, again postponed, may be hoped for if the society take root, and hidden treasures will be unearthed that are comparatively unknown, and which are unequalled; for instance, the inconceivable amount of ancient tapestry in the different palaces, of such beauty and excellence of design and execution as cannot be surpassed elsewhere.

Let us augur good things from the operations of the Donatello Society, and from the fact of the ready and spirited aid offered by their French friends and neighbours.

SIR CHARLES DILKE'S RETURN.

THE return to the address moved for by Sir Charles Dilke, on the 10th of March last, for certain details of information intended to throw light on the true policy of the proposed Metropolitan Water Works Purchase Bill, was ordered by the House of Commons to be printed on May 31st, and appears in Messrs. Hansard's list of Parliamentary publications for June. The frequent reference to this return by the chairman of the special committee has directed public attention to it, and a brief account may therefore be welcome.

The order for the return, which is printed on the title-page, is so minute and comprehensive that it might have been expected that a full *aperçu*, such as has been given in our own columns (see pp. 181, 301 of our last volume), would have been stamped by official authority, and put into the hands of the public. But long experience on the part of those charged with the elaboration of Parliamentary returns has given them a power of obscuring the facts sought, which no care would seem to be able to anticipate and to prevent. The second part of the return does, indeed, present in parallel columns the details which were already in the hands of those who had procured the Board of Trade returns of the accounts of the water companies from 1871 to 1879. So far as presenting them in one blue (or rather white) book, instead of in nine, and as some working-out of details as to cost, goes, the return will be found a convenience to those who have to discuss the matter. But for the gist and outcome of the whole, that is to say, the sum of the returns, every one will, as heretofore, have the pleasure of calculating it for himself. Only the separate accounts, company by company, are given in the return. The great point of presenting the general result in a form that can be grasped without the constant addition of eight columns of figures is omitted from the return.

The importance of such a summary will be clear from the following considerations. The first thing required in the return was the financial statement on which the calculations for the payments contemplated by the Bill were to be made. In reply to this demand, Mr. E. J. Smith writes to the Home Secretary to say that "no official statement was deposited with the agreements, but its contents should in every way transpire before the confirmation by the water companies." Four schedules are then given: of which A sets out the prices agreed to be paid to the several companies (being, in fact, printed in the Bill); B sets out the interest to be paid in the year 1880-81, the revenue in that year, and the "allowance made to the several companies"; C is an estimate of the increment of income from 1881 to 1900; and D gives "certain statistics."

Of these statistics the first item is the gross incomes of the companies in 1879. The column which contains them is added up, and gives the gross total of 1,449,446*l.* It is by the absence of any corresponding column in the second part of the return that the immediate detection of a very serious discrepancy in Mr. Smith's figures has been avoided. In every instance the sum returned by Mr. Smith as the gross income for the companies for 1879 is considerably larger than the sum returned by the companies themselves! To show that we have not miscalculated, we add the items, placing side by side the two returns:—

Company.	Gross Income, 1879.	Total Income, March, 1880.
Chelsea	£98,780	£95,173
Grand Junction	137,200	134,311
Lambeth	150,074	145,525
Southwark	180,977	171,394
West Middlesex	164,746	159,570
New River	416,000	396,829
East London	208,741	203,943
Kent	92,928	86,286
	£1,449,446	

The items in the second column are not added up in the return, but come to 1,393,030*l.*

The gross return of the several companies is a matter as to which there is no room for dispute. If anything is said about it, it ought to be the simple arithmetical truth. The sum given by Mr. Smith, as we have said, for 1879, is 1,449,446*l.* The sum of the returns of the eight companies, given on pages 7 to 21 of the return, is 1,393,030*l.* There is therefore taken, as the basis of the financial arrangement, an over-credit of 56,401*l.* per annum, above the receipts of the companies, according to their own returns!

If each item in Schedule D be compared with the sum of the figures presented by the companies, a similar misfit turns up. Thus the East London Waterworks Company, which Mr. Smith makes out to have received 208,741*l.* in 1879, while they say they received 203,942*l.*, spent as follows, according to the two contradictory accounts. By their own return they spent 73,619*l.* on maintenance, 16,191*l.* on management, 17,216*l.* on interest paid, and 107,741*l.* in dividends. Mr. Smith states that they expended 86,621*l.* on "expenses and interest" (instead of 89,810*l.*), and 122,120*l.* in dividends. Thus this company is credited with 6,642*l.*,—too high a receipt—and 3,199*l.*—too low an expenditure—making a difference to the good of 9,841*l.*, and is said to have divided some 14,000*l.* more in dividends than its own accounts show! It may be fairly questioned whether so utterly unreliable a financial statement was ever brought before Parliament or the public as the basis of an important measure of legislation. The case of the companies is overstated by the negotiator for the Government. One feature of interest is to be found in the returns, in the statement of average cost per million gallons of water in respect of working expenses. The outcome of the paper is to show a variation in cost from the minimum of 7·71*l.* per million gallons, in the case of the Southwark and Vauxhall Company, to the maximum of 14·67*l.* in the case of the New River Company. The unit of the million of gallons is not, however, as convenient as that of the ton or the hundred tons of water, as its relation to the population is complicated. A million gallons is equal to 4,545 metric tons, or to the annual supply of about 90 individuals; the cost apiece thus ranging from 1·71 shillings to 3·26 shillings for working expenditure alone.

CHESTERFIELD AND ITS TRADE.

IN pleasant Derbyshire, one of the largest and most important of the ancient towns is Chesterfield, which has historic greatness, and which has had by its position greatness thrust upon it. It could be said of it once upon a time that Wordsworth's words were almost literally correct,—that "not a house but" seemed to give "assurance of content within," and though there has been great change in the pleasant county of Derby, there is not a total change in this respect. The large and irregularly-built town of Chesterfield is supposed to date back to Roman days. The great charter-granter, King John, gave it one, with the privilege of two markets and a fair; and by good Queen Bess this charter was confirmed, and later it was ratified by Charles II. It confided the town government to the hands of a mayor, "six aldermen, six brethren, and twelve capital burgesses," with their attendant chamberlain, clerk, and other officers. But even in pleasant Derbyshire the last two score years have introduced a great change, and we may, in glancing at the picture of Chesterfield and its trade two score years ago, and at the present time, notice evidences of that change almost everywhere. In the earlier period, Chesterfield had a court-leet under the lord of the manor, at which a constable was chosen. It had a varied trade,—hosiery, lace, and flax being amongst the manufactures; whilst there were large iron-foundries, tanneries, and potteries, and near it lead, coal, and iron mines were wrought. Its church was then an object of interest, much more the famous "twisted" spire thereof. In addition it had seven places of worship for persons of other denominations than Episcopalians. The Free Grammar School dated back to the days of Elizabeth, and there were other schools, almshouses, and abundance of literary and benevolent associations, whilst "an elegant assembly-room" had been a few years before built. The population of the parish, which in 1821 had been 9,190, had risen to about 10,000, one-half being that of the town. A canal passed near, but railways were projected only. There were three well-established banks, two of which at least survive, with little change in the title. Five coal-masters were in or around the town. There were seven earthenware manufacturers, but not on a very extensive scale; two ironfounders, and five lace-manufacturers. The one newspaper of those days was the *Derbyshire Courier*, and the rest of the trades had nothing calling for special note. The Waterworks and Gaslight Company had its dwelling-place in Westbars. From the Angel in New-square seven coaches departed, mostly daily, and the Pickfords, the Wheatcrofts, and the Hibbersons were the chief of the many carriers. There was the one conveyance by water "to all parts of the kingdom" from the Canal Warehouse, and, under "John Bower, governor," there was the House of Correction in Bowling-green-side. The names of the streets, the trades carried on, and the nature of the inhabitants of those days had a pleasant old-world look, and in the county of Derby there were not many more pleasant spots than was Chesterfield two score years ago.

There has been a growth in the town of Chesterfield these two score years. It has forsaken the arts of war that distinguished it in the Civil War. It retains its curious old church, and has added thereto the Trinity Church, and the yet more handsome structure which commemorates the connexion of George Stephenson with the town. There has been a connexion with the great railway system, and there is around the town the upgrowth of a great coal-trade. The Tapton Coal Company records one of the adventures of Stephenson, long successful, and which may, when the coal-trade feels the improvement, again contribute to the wealth of the district; and though around the town there are places of historic note, — places such as Wingfield Manor House,—it is doubtful whether the old colliery is not as interesting. When it is stated that 41 out of the 240 collieries of Derbyshire are classed in the sub-district of Chesterfield, it will be evident that its contribution to the county output of coal of 7,190,000 tons cannot be very small. Out of the fifty-five

blast-furnaces of Derbyshire, eighteen are classed as in the Chesterfield district, and the eighteen include the important works of Sheepbridge and Staveley, whilst other sets of smelting-plant are near; and there are other minerals or their products, produced in the neighbourhood which have tended to the development of the trade of the district and of the town which has retained its central advantages. The older trades of Chesterfield have been materially developed by the growth of the great mineral industries in and around the town, and as these industries were either the growth or were stimulated by the railway system, or by those whom it brought into the district, it is not to be wondered at that Chesterfield was desirous to commemorate the residence of George Stephenson in its midst. Five years ago it projected the memorial hall which was last year opened, and which may fairly claim to be the most graceful specimen of architecture Chesterfield possesses. In 1877 the Marquis of Hartington laid the foundation-stone, and in 1879 the Duke of Devonshire formally opened it. The Gothic style has allowed of a picturesque aspect being given to the stately building, which was erected at a cost of over 13,000*l.* It has a spacious public hall, a free library and reading-room, museum, lecture-hall, and other rooms, and already it has found use as a meeting-place for the Chesterfield and Derbyshire Mining and Mechanical Engineers and allied bodies.*

As to the figures that show the growth of Chesterfield, it may be said that its population had more than doubled at the time of the last census, and was then over 11,000; whilst the rate of increase has in the present decade been as large as in any previous. It has retained and extended its banking facilities; has added to the number of its newspapers; and though its coaches and most of its carriers are gone, they are replaced by the carrying connexion which its position on the great Midland Railway gives it. The ancient town and its trade are both revolutionised by the advent of the railway system, and it is tolerably certain that its prospects for the future seem to brighten. It is in the midst of the great Midland coalfield; in the midst of the great ironfield of that district; and surrounded by collieries and ironworks of repute, such as those of the Butterley Company and of the Clay Cross Company, to mention no others. Near it are famous lead-mines, and though for years there has been deep depression felt in that industry, yet there are indications that with the advance in the price of lead there will be an increased activity known in the mining districts. It is on these three great industries that the future of Chesterfield largely depends, for lace and cotton cannot alone support a great town such as it has become and is becoming. So far as can be foreseen, the two chief of these three industries must advance, for there is a continuous growth in the demand for coal, which benefits all the coal-yielding districts of the kingdom, and especially those which are, like that of Derbyshire, relatively very near to the metropolis, and which are well served by railway companies. There is a change taking place in the iron trade, as is well known, but that change is one in favour of the districts producing high classes of iron, such as Derbyshire yields; and with a probable prosperity for these two important branches of the trade of the county, there should be in Chesterfield a continuance of that steady progress it has known for centuries, and experienced in peace and by a comparatively contented people.

NEW PAROCHIAL OFFICES, WESTMINSTER.

A CERTAIN number of architects having been invited to submit designs for the erection of new parochial offices for St. Margaret's and St. John's, Westminster, ten sets of drawings have been sent in, and are now under the consideration of the vestry committee, at the United Westminster Schools, Alexandra-street, Victoria-street. We have been requested to give no notice of the plans at present, and of course willingly comply.

The Index Society.—The second annual meeting will be held in the rooms of the Society of Arts, John-street, Adelphi, on this Friday, July 9th, the American Minister in the chair.

* View, plan, and description of this building will be found in our volume for last year, pp. 772, 774.

CENTRAL SCHOOLS AND OFFICES, SCHOOL-BOARD, SHEFFIELD.

A VERY important block of buildings, comprising the Firth College, Central Schools, and the School Board Offices, has been erected in Sheffield, to the great satisfaction of the townspeople. The style adopted may be called English Renaissance; the principal material employed is Huddersfield stone. There are two chief entrances, both handsome,—that in Bow-street, giving access to Firth College, and one leading to the new offices of the School Board, which form the central portion of the block fronting the new street.

The buildings form three sides of a quadrangle, the fourth side of which will be walled, so that the open space in the centre of the square may be used as a playground by the children. The Firth College occupies the Bow-street side, and fronts to a portion of the new street.

We give illustrations, view, section, and plans of the schools and Board offices.

The offices of the School Board, which are set a little back, form the centre of the group of buildings. They adjoin the College on the Bow-street side, and are connected with the Central Schools at the other end by a colonnade, which will be zinc-roofed, and utilised as a playground. A broad flight of steps from the main entrance gives access, along a corridor with a groined roof, to the offices of the Board, beneath which, in the basement-story, are store, strong, and sample rooms for slates, school-books, and other materials. The Board-room is on the ground-floor to the right of the entrance, and is 35 ft. by 25 ft., and will be panelled with carved oak, and have a ceiling decoration chiefly consisting of plaster figures representing learning. The committee-room is next to the board-room, and on the same floor is a members' room, and an ante-room. The first-floor is set apart for the office of Mr. Moss, the clerk to the Board, his private office adjacent, and the general offices, which include rooms for the corresponding clerk, minute clerk, visitors' book-keeper, accountant, and inspectors, as well as a large office for the general clerks. At the rear of the offices, facing the interior of the quadrangle, is a covered playground, supported by stone columns, to which the scholars will be able to resort when the weather is too unfavourable for their recreation in the quadrangle itself.

At the further end of the line of buildings are the Central Schools, which have a fine frontage to the new street, and extend some distance along Orchard-lane. The entrances to the schools are placed in Orchard-lane, and consist of a main entrance and two minor doorways, one for boys and the other for girls. The basement contains the school of chemistry, a room 20 ft. by 22 ft., and a larger room, 39 ft. by 20 ft., at present unappropriated for any special purpose. On this floor is a joiner's shop and a chamber set apart for the heating-apparatus. The ground-floor comprises the school of cookery, exactly the same size as the school of chemistry, and in connexion with it is a commodious scullery. In this story there is also a babies' room, a junior mixed school, accommodating 233 scholars; an infants' school, accommodating 193; a deaf and dumb school, accommodating 48; a fine gymnasium, and several class-rooms. The various schools are approached from the basement by two flights of stone steps. The mezzanine floor is fitted with rooms for the teachers, a lavatory, and apartments for the caretaker. On the first floor there are eight class-rooms, almost uniform in size, and rooms for the head master and mistress. Each class-room accommodates 48 scholars, and all are for the use of the senior boys and senior girls, of whom 480 will be able to receive education in the building. There is also a library on this floor, and it will be available to all the senior scholars. The next story is devoted exclusively to a large hall, constructed in the roof. It runs along nearly the whole length of the central school, and is 86 ft. long by 34 ft. wide. The hall will be used for lectures and similar purposes, and will accommodate about 1,500 persons.

The Central Schools are intended to solve the problem of connecting the very earliest education with higher knowledge, in such a manner as to open the whole field, even up to the university itself, to the poorest child in the town. The schools, as previously stated, comprise an infants' school, a general mixed school for boys and girls, to be taught together, and an upper school of boys and girls taught separately. The upper school, which is really the most novel portion of the undertaking, is intended by the School Board to be chiefly for the reception of clever boys and girls drafted from any of the elementary schools of the borough, on the recommendation of managers and teachers after due examination. These may be admitted to receive here a higher training than is ordinarily open to those of a similar position in life, as it would be impossible without great increase of teaching power to adopt such a system throughout the elementary schools of Sheffield. The senior departments are the principal feature of the schools. They are arranged on the class-system, but in the planning, improvements are introduced beyond what is generally adopted. Each class-room is really a little school in itself with cloak-room opening out into the general corridor, and there is in addition a small private room for the teacher.

The cost of the entire range of buildings, including furniture, architect's commission, &c., but exclusive of land, amounts to about 70,000*l.* Of this amount, 20,000*l.* is for the erection of the college, the cost of which is borne by Mr. Mark Firth. The heating apparatus, supplied by Mr. D. O. Boyd, of London, is effective. It is fixed in a large chamber, 84 ft. long, 5 ft. wide, and 5 ft. high, in the basement of the central schools. It heats the whole building by twenty tiers of pipes, and not only warms but purifies the atmosphere. The air is brought into the building through an iron grating, but before it passes into the pipe chamber it is conveyed through a canvas, upon which a spray of water plays, the effect being that the atmosphere is cleansed from all impurities, such as dust and smoke, after which the clarified air passes through a series of cavities into the various rooms, the supply being regulated by easily-worked valves.

The architects are Mr. T. J. Flockton (Sheffield) and Mr. E. R. Robson, F.S.A. (London). The builder is Mr. Bisset (Sheffield), and Mr. J. Laidler (London) is clerk of the works. The carver is Mr. J. M'Cullock, of London.

DENZELL HOUSE, BOWDON, NEAR MANCHESTER.

THE house here illustrated has been erected at Bowdon, for Mr. Robert Scott, Messrs. Clegg & Knowles, of Manchester, being the architects. It is externally constructed of Yorkshire stone, with dressings of Manley stone, and Messrs. Neill & Sons were the contractors. The cost was about 18,000*l.* The brickwork was by Mr. James Hamilton; the masons' work by Mr. Mills.

A view of the lodge was given in our last.

BLACKFRIARS BRIDGE.

AT a meeting of the Court of Common Council on the 1st inst., Mr. Hart moved,—

"That it is desirable that Blackfriars Bridge be completed in accordance with the designs and provisions of the engineer, by the addition of appropriate groups of statuary, to be placed upon pedestals provided for that purpose at the extremities of the bridge, and that it be referred to the Bridge House Estates Committee to obtain (by public competition) designs, which shall be the absolute property of the Corporation, at an expense by way of premiums of a sum not exceeding 1,000*l.*, reporting thereon, with the cost of executing the work, to this Court."

He reminded the Court that the engineer of the bridge, Mr. Cubitt, in the report which accompanied his design, said, "The abutments are well adapted for the erection of equestrian statues or groups of statuary." Sir F. Leighton, the president of the Royal Academy, had addressed a letter to the Lord Mayor on the subject, in which he alluded to the "strange and unparalleled indifference of the wealthiest city in the world" in leaving Blackfriars Bridge uncompleted; and if the members of the Corporation went to Edinburgh, Glasgow, Paris, or any large city on the Continent, they would find that art had been cultivated there for years past in a way which London might well imitate. There was no doubt that in 1861 it was contemplated that the abutments of the bridge should be graced with statuary, and he (Mr. Hart) trusted that the matter would not be delayed any longer.

Mr. Edmeston seconded the motion, remarking at the same time that he thought the strictures of Sir F. Leighton were scarcely deserved.

The motion was agreed to.

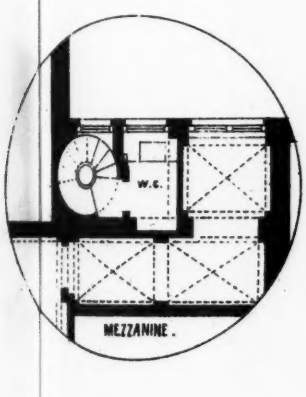
Whiteman & Bass *Photo-Litho* 236 High Holborn

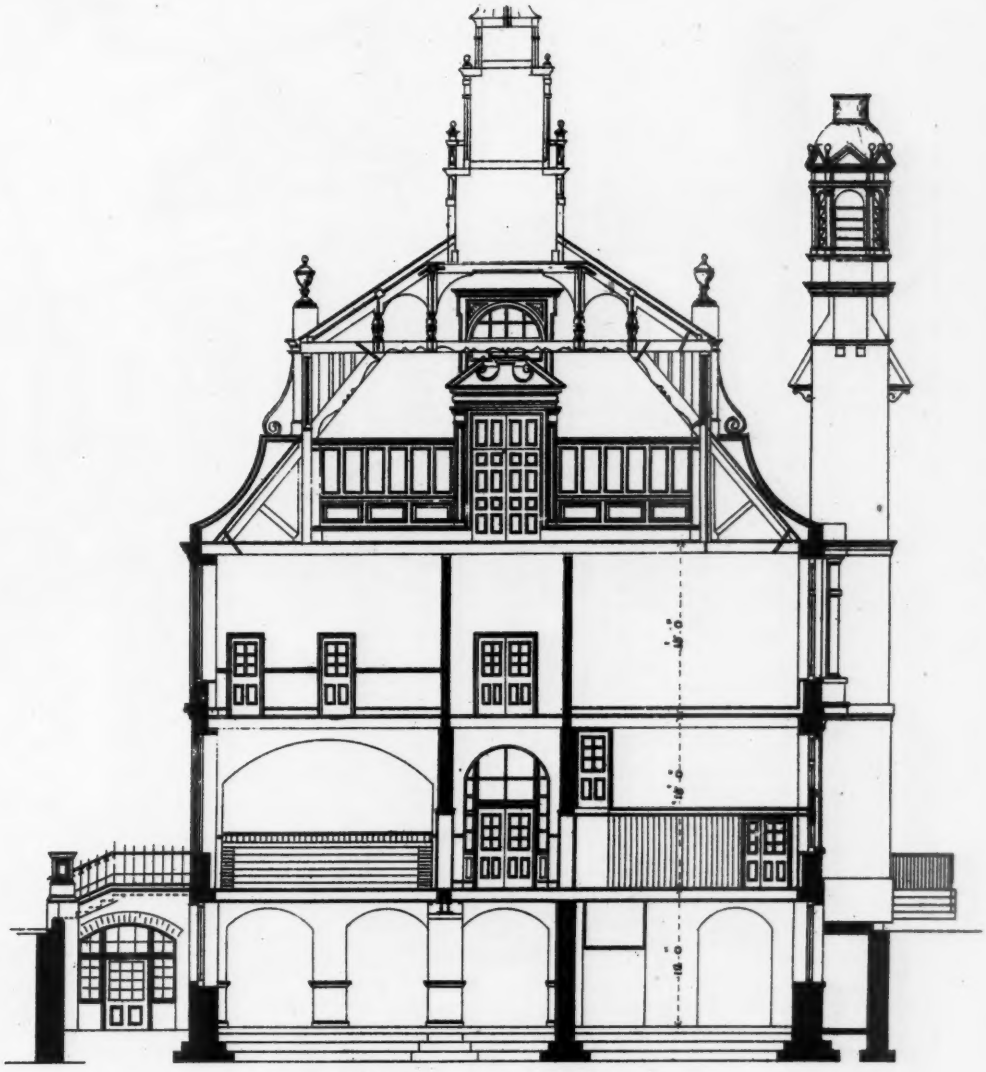
DENZELL HOUSE, BOWDON, NEAR MANCHESTER.—MESSRS. CLEGG & KNOWLES, ARCHITECTS.

Wyman & Sons, Printers, G^t Queen S^t

FIRST FLOOR PLAN.

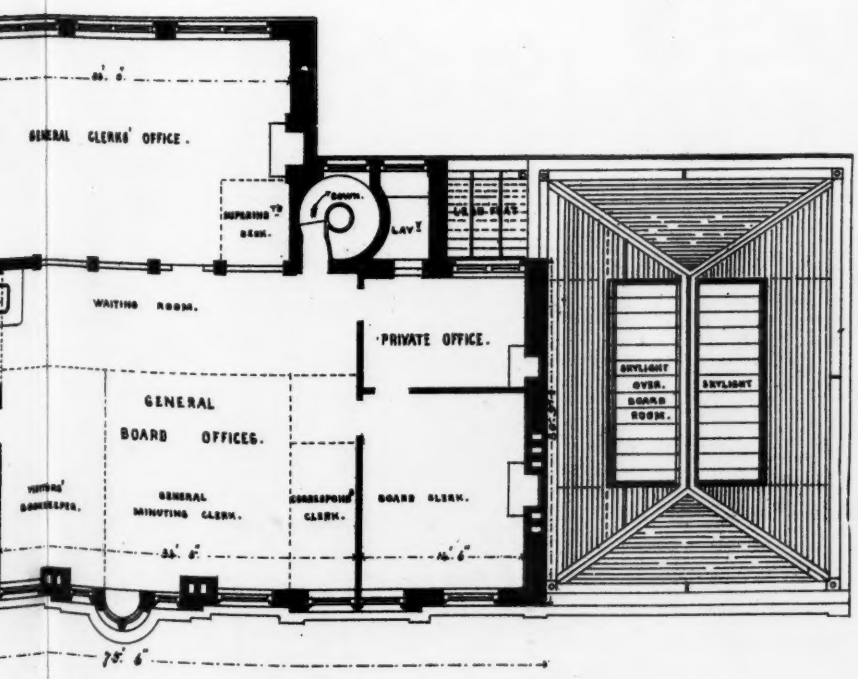
Whiteman & Bass *Photo-Litho* 236 High Holborn

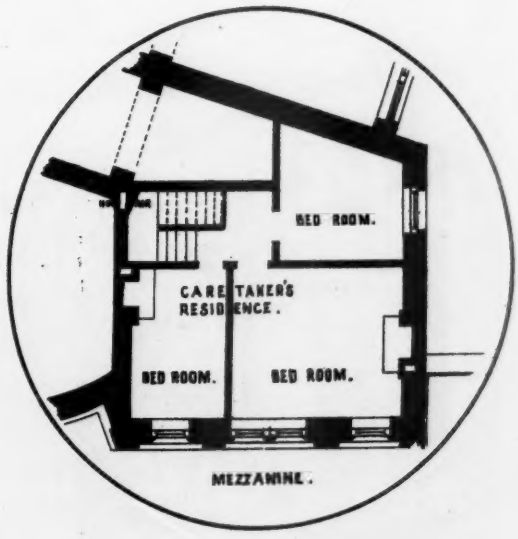




TRANSVERSE SECTION.

SCALE OF FEET.





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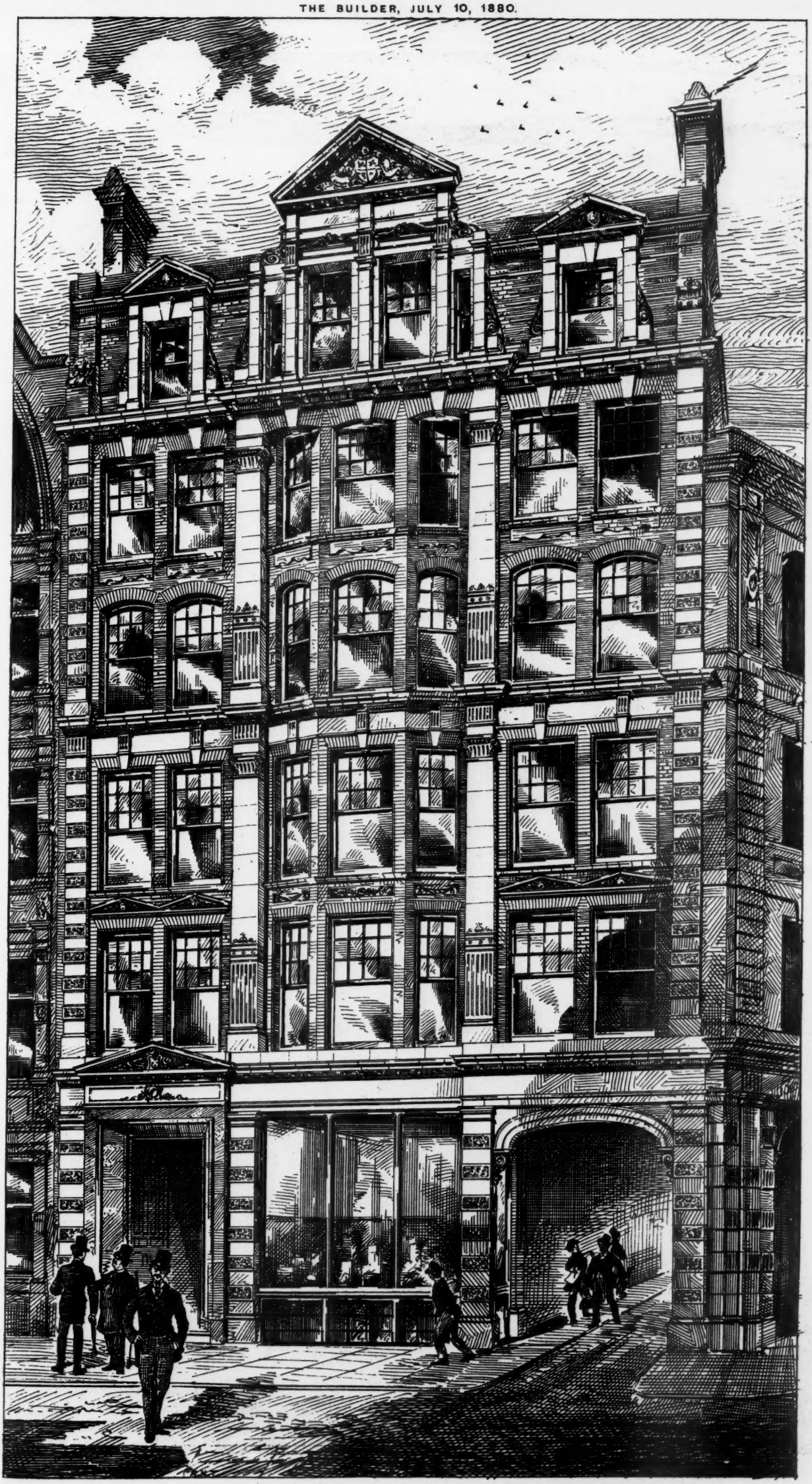
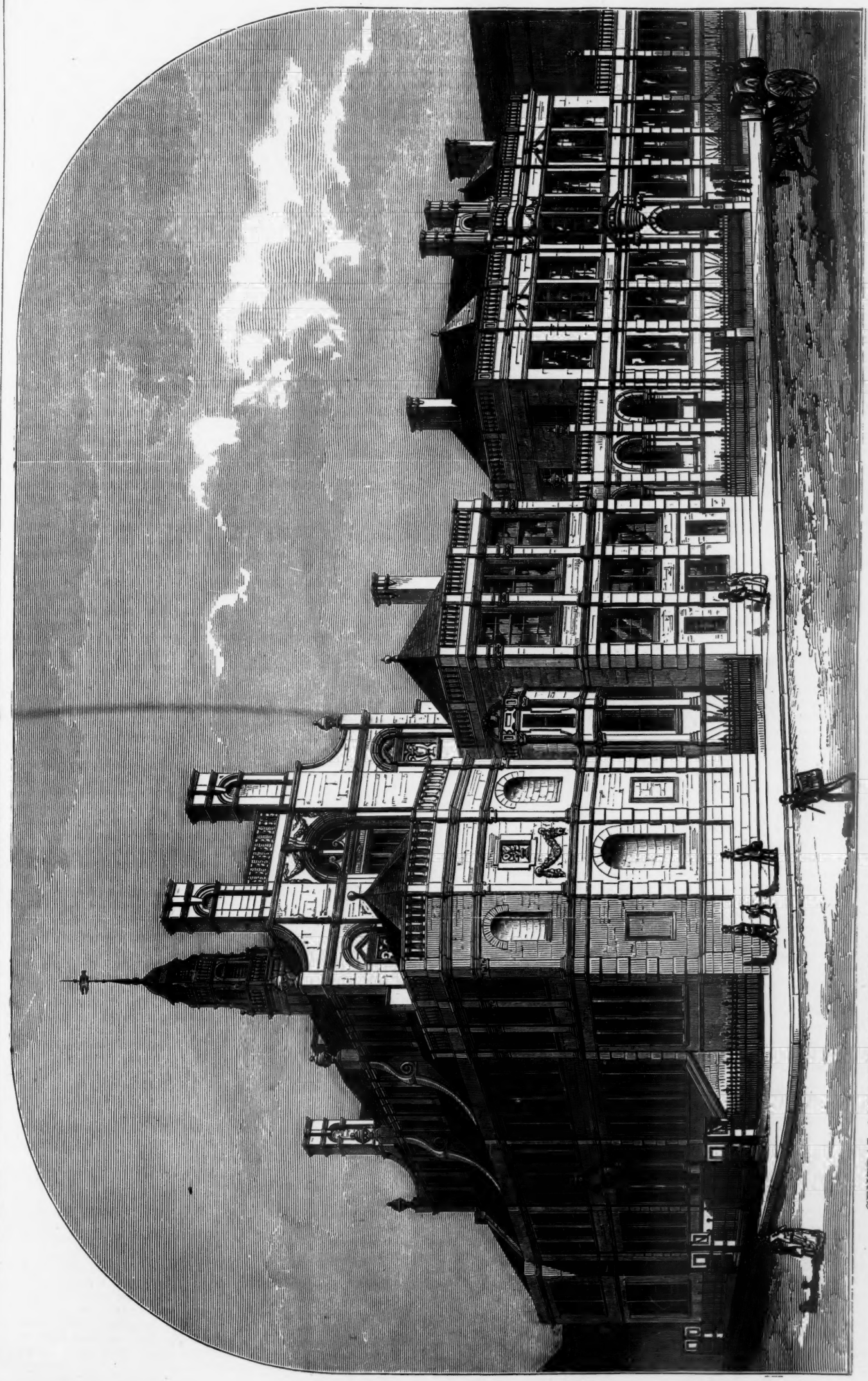
FICES, SCHOOL BOARD, SHEFFIELD.



LONDON STREET ARCHITECTURE: HOUSE IN BUCKLERSBURY.—MR. WHICHCORD, F.S.A., ARCHITECT.



CENTRAL SCHOOLS AND OFFICES, SCHOOL BOARD, SHEFFIELD.—MR. T. J. FLOCKTON AND MR. E. R. ROBSON, F.S.A., ARCHITECTS.

LONDON STREET ARCHITECTURE: 20, BUCKLERSBURY.

IN a former number we published some particulars of an extensive block of new buildings, intended for banking, insurance, or other commercial purposes, in course of completion at the corner of Queen Victoria-street and Bucklersbury, immediately opposite to the National Safe Deposit Company's premises, from the designs of Mr. John Whichcord, F.S.A.* We now give a view of the building, and for convenience sake repeat a part of the account. As with the Safe Deposit Company's premises adjacent, the unseen basement portion of the new buildings forms a considerable part of the whole, the foundations being carried to a depth of 40 ft. below the ground-floor, and admitting of the construction of a lower ground-floor, a basement, and a sub-basement, the floor of the sub-basement being 30 ft. below the street level, and the foundations beneath the sub-basement being filled in with concrete to a depth of 10 ft. The Bucklersbury frontage is 40 ft. in extent, and is carried to a height of 70 ft. The building contains a lofty ground-floor, and five stories above, in addition to three stone dormers which surmount the elevation. The ground-floor portion is in Portland stone, the principal entrance at the east side of the frontage being in polished Dalbeattie granite. At the west side of the elevation there is a carriage-entrance to Old Barge-yard. The main face of the elevation above the ground-floor is in red Suffolk brick, with Portland stone quoins at the angles, and fluted pilasters with capitals in the central portion, also in Portland stone, carried up to the main cornice below the dormers. The central windows of the several floors are bays, with windows in two divisions on each side, the first-floor windows being surmounted by ornamental mouldings and carving in red brick. The building is carried to a depth of 90 ft., the west frontage in Old Barge-yard being partly in white glazed bricks, and partly in white Suffolk bricks. Internally the several upper floors are so constructed as to provide upwards of seventy chambers and offices, which will be reached by, in addition to the staircase, a steam-lift fixed in the centre of the staircase, working up, continuously throughout the day, from the sub-basement to the top of the building. The engine-room, with motive-power for the steam-lift, will be erected at the upper part of the building, above the fifth floor, and will be formed of concrete and iron.

Mr. E. Lawrence, of City-road, is the contractor; Mr. Roberts is the clerk of the works. The cost of the structure will be between 14,000*l.* and 15,000*l.*

In the view now given, the entrance to the offices is shown as originally intended by the architect, but in carrying out the work it was found necessary to utilise more of the valuable frontage by limiting the space devoted to the doorway referred to; with this exception the view represents the building as executed.

* See vol. xxxviii., p. 615.

THE PAVING OF "NEW STREETS."

THE Parliamentary Committee of the Hackney Vestry have prepared an exhaustive report on this subject, which is of great importance to builders, owners of house property, and others liable to apportionment-payments. The reference to the committee was upon a motion by Mr. Button, "That the paving by the authority of the District Board of Works, of certain 'new streets, or parts thereof,' out of the general rate, is contrary to the provisions of the Metropolis Local Management Act, 1855, sec. 105, and the Metropolis Local Management Amendment Act, 1862, sec. 77; and that the sums so expended should forthwith be charged 'to the owners of the houses forming such street,' and of the 'land bounding or abutting thereto'; that the general rate should be recouped the amount so expended; and that it be an instruction to the District Board of Works henceforth to carry out the provisions of the said Act in respect to paving." The committee report that having had the sections of the Acts under review and the decisions of the courts of law thereon, they "are clearly of opinion that the Legislature intended, by the passing of these Acts, that no first paving need be made at the cost of the ratepayers." At first there appeared to be some difficulty in carrying out the provisions of the Act of 1855, as to charging the cost of paving *new* streets on house-owners, which by sec. 250 defined the word "street" to include any "highway (excepting the carriageway of any turnpike road), road, bridge, lane, footway, square, court, alley, or passage, *whether thoroughfare or not*," and also as "part" of any such highway, &c.; and by sec. 112 of the Act of 1862, the word "street" was held to include "mews," and the words "new street" were declared to mean and include "all streets hereafter to be formed or laid out, and a part of any such street, and also all streets the maintenance of the paving and roadway whereof had not, previously to the passing of the Act, been taken into charge and assumed by the authorities having control of the paving and highways in the parish, and also a part of any such street, and also all streets partly formed or laid out." Since the passing of the Act of 1862, many cases have been submitted to the superior courts for decision, respecting the paving of streets, and the vexed questions, what is a new street, and who are liable to pay for the paving, have been fully settled by the decisions in the cases of Pound *v.* Plumstead District Board of Works, in 1871, and reported in 7 L.R., Q.B., 183; Dryden *v.* Putney Local Board of Health, in 1876, reported 1 L.R. 1, Ex. D., 223; Attorney General *v.* Wandsworth Board of Works, L.R. 6, Chancery D., 539; and other cases too numerous to mention. There are, of course, numerous other decisions on collateral questions, but the above cases fully settle the application of sec. 105 of the Act of 1855, and sec. 77 of the Act of 1862. The district over which the Hackney District Board of Works exercises authority was one which, at the time of the passing of the Act of 1855, contained twenty-eight miles of roadway and sixty-nine miles of footways, under the control of the Board, and twenty-three miles of roadway and twenty-one miles of footways not under its control, and was, in fact, a rural district, and "its footways stood alone in being unpaved amongst those of all the suburban parishes" (Report for 1856). It was considered best to preserve its urban character as long as possible, but the time came when it was necessary to pave the old footways which were laid out before the passing of the Act, and the Hackney District Board of Works took under their consideration the advisability of adopting sec. 78 of the Act of 1862, but came to the resolution that the old footways should be paved out of the general rate. There is, however, a resolution in the minute-books of the Board that where the owners of houses would agree to contribute a moiety of the expense of paving the old footways, the Board would at once lay down paving, with a view to the general benefit of the district. The committee then call attention to the Hackney paving loans, and to the fact that over 100,000*l.* has, from time to time, been collected from owners for paving new streets. Out of the last loan there was expended 3,606*l.* 2s. 11d. for paving Sidney, Grove, Cassland, Amhurst, Clarence, Downs Park, Downs, London, Eleanor, Loddiges, and Paragon roads, and Lamb-lane, which thus falls upon the general rate; and the question which occupied the earnest and careful attention of the committee was whether these roads were "new streets" within the meaning of the Act, and therefore ought to have been charged on the owners under sec. 105 of the Act of 1855, and sec. 77 of the Act of 1862. The list above given, it may be observed, does not represent the whole of the roads and streets in the district which have been paved at various times out of the general rate, as of course is apparent from the expenditure, but only such as were involved in the resolution of reference to the committee. There are at the present time streets in the district which have been paved out of the general rate on one side only, the other side being still unpaved. To ascertain whether the roads mentioned in the schedule are "new streets" within the meaning of the Act, the committee have directed special attention to the cases of Pound *v.* Plumstead District Board of Works, Dryden *v.* Putney Local Board of Health, and the Attorney-General *v.* Wandsworth District Board of Works. From the facts connected with the roads as regards the Putney case, the committee are of opinion that it may be fairly contended from the further light which the above cases have given upon the subject, that each and all of the streets and roads mentioned in the schedule are analogous with the cases above mentioned, and are "new streets" within the meaning of the Act.

Illustrative and confirmatory of the committee's opinion, they append to the report an appendix, giving the facts of "Dryden *v.* Putney Overseers," setting forth that the appellant had been for eight years the occupier of a house in High-street, Putney, at some distance, and quite separate from, Upper Richmond-road, hereinafter referred to; and the distress was made in respect of part of a rate to which he was assessed in respect of his house at High-street. Upper Richmond-road was an old highway, and had been kept in repair for forty years by rates raised from the ratepayers of Putney. At the time of the passing of the Metropolis Local Management Act, 1855, this road had on its south side an irregular line of houses, but 434 yards out of the entire length of 734 yards were bounded by market gardens, and on the north side there were gardens, except at two places where there were two cottages. Along the south side there was a good raised gravel footpath, and on the north a narrow ill-defined foot-track. Since 1855 the two cottages had been pulled down, and the whole of the frontage land on the north side covered with houses, and in the course of building, the old boundary hedge had been removed and a fence formed; at intervals from 1864 to 1870 the Wandsworth District Board of Works fixed a granite kerb and gravelled the path, which was paid for by the Board out of the general rates of the parish, since which the footpath had been repaired by the Board. In 1874 the Board asphalted the southern footpath, the cost being included in the general rate. Prior to this, the appellant had (in June, 1874) urged the District Board under the circumstances that the road had become a "new street" under the Metropolis Local Management Acts, and that the cost of paving the footpath ought to be borne, not by the ratepayers of Putney at large out of the general rate, but by the owners of the houses and land abutting on the footpath in question. The District Board, however, refused to accede, contending that the road was not a "new street" within the meaning of those Acts. Appellant refused to pay 1s. 6d., part of the amount at which he was assessed to the general rate, on the ground that that sum represented the proportion charged for the paving of the footway,—an expense improperly included in the general rate,—and in consequence of such refusal 10s. 4d. was levied on appellant's goods, by a magistrate's order. It was admitted that 1s. 6d. was the proper proportion of the rate of 1*l.* 11s. 6d. attributable to the cost of the paving in question, and that if the appellant was not liable, as the occupier of his house in High-street, to contribute to the cost of such paving, the rate of 1*l.* 11s. 6d. ought to be reduced by the sum of 1s. 6d. The question for the opinion of the Court was whether under the circumstances above set forth, and having regard to the provisions of the Metropolis Local Management and Amendment Acts, 1855 and 1862, respectively, the appellant, as occupying the premises in High-street, was liable to contribute to the expenses of the above-mentioned paving on the north side of Upper Richmond-road. The case was heard before Mr. Justice Grove and Mr. Justice Quain in 1876, and the decision of the Court was in favour of Mr. Dryden and against the District Board of Works." This important report is fixed for debate at the next meeting of the Hackney Vestry in August, and thence, if adopted, it will be sent to the District Board of Works, where it is sure to be stoutly opposed.

GREEK PAINTING.

MR. NEWTON'S eighth lecture* on Ancient Greek Art treated of Greek painting, for the history of which, the lecturer said, the evidence was of a very slender kind. If we passed over the few traditions about Greek painters in the archaic period of art, the first name of note was that of Polygnotus, who flourished between the end of the Persian war and the beginning of the Peloponnesian war. At Delphi he adorned the walls of the great hall called the Lesche with two great compositions, the Taking of Troy and the Descent of Ulysses into Hades. Pausanias had left us a very full description of these, giving the names of all the figures represented and the order in which they were arranged. We must suppose the more distant

* See p. 24, *ante*.

figures placed above the others, not exactly in parallel lines, but in groups disposed with a certain tendency to horizontal regularity. There was in such compositions no attempt to render aërial perspective. The sources which inspired Polygnotus in great compositions were the "Iliad" and "Odyssey," and the Cyclic poets. He painted also great historical pictures at Athens, in conjunction with Mycon and Panænos. Several attempts had been made to recompose the designs of Polygnotus at Delphi by the aid of the description in Pausanias, but such attempts, however ingenious, could only be regarded as pure speculations. With regard to the merits of Polygnotus as a painter, our best guide was the authority of Aristotle, who, living in the full maturity of Greek painting as developed by a succession of great masters from Zeuxis to Apelles, emphatically held up Polygnotus for the study of youth as being beyond all others the ethographer or painter of noble character, *ethos*. In thus distinguishing Polygnotus, Aristotle contrasted him with Zeuxis, whose paintings he considered deficient in that quality of *ethos* which was so conspicuous in Polygnotus. In the period immediately following, painting was still further developed by Apollodorus, who made the first essays in chiaroscuro, which were followed up with more brilliant results by Zeuxis, who, to use Pliny's expression, entered the door which Apollodorus had opened. Zeuxis painted a celebrated picture of Helen for the city of Croton, in Lower Italy. Parrhasius, a contemporary of Zeuxis, carried the art still further. He appeared, from Pliny's statement, to have succeeded in bringing out his figures in strong relief by the skill with which the contours were rendered. Neither Zeuxis nor Parrhasius appeared to have painted great historical compositions like those of Polygnotus, but rather isolated groups or single figures. Among the most conspicuous names which are found in Pliny's list was that of Pamphilus, who established a school at Sicyon, where he taught drawing on scientific principles; his scholars, who paid very large fees, drew on boxwood. Pausias, a scholar of Pamphilus, invented encaustic painting, which enabled him to obtain finer and deeper gradations of colour as modified by chiaroscuro. He was thus enabled to accomplish very bold foreshortenings. In one of his pictures an ox was so presented in a front view that the whole length of the animal was suggested. The successive improvements in art developed by these masters led to a power of expression which showed itself in the choice of dramatic incidents, to portray which it was necessary to render transient emotions. Such subjects were the dying mother still suckling her child in the picture by Aristides of the taking of a city, and the sacrifice of Iphigenia, by Timanthes, in which the grief of Agamemnon was expressed by the expedient of veiling his face. Apelles, after having had the benefit of the teaching of Pamphilus, and of the study of the great masterpieces of his predecessors, attained an eminence which entitled him, in the judgment of antiquity, to the highest rank as a painter. He did not appear to have been distinguished for his skill in complicated compositions of many figures; but the grace and charm of his pictures, the harmony of his colouring, and his wonderful mastery over all technical difficulties, were qualities in which he had no rival. He was the Court-painter of Alexander the Great, as Lysippus was his sculptor, and they alone among contemporary artists had the privilege of taking his portrait. Among the most celebrated works of Apelles were his "Alexander wielding the Thunderbolt" and his "Aphrodite rising from the Sea." A contemporary of Apelles, who, through that great master's generous notice, rose suddenly from comparative obscurity into fame, was Protogenes of Rhodes, a painter who, like Leonardo da Vinci, finished painfully and elaborately, attaining thus a perfection which excited the admiration of Apelles, but led him to utter those warning words which had since become a proverb,—*manum de tabula*. Protogenes appeared to have painted very few pictures. His two most celebrated works were his "Ialysus" and his "Satyr in Repose." After the reign of Alexander, there were many Greek painters, but of these no name was very prominent, except that of Timomachus, who lived at some time in the Hellenistic period, and who painted a Medea and an Ajax. Painting in the Hellenistic period had an idyllic tendency, with more or less of landscape in combination with some mythic incident or a scene from real life; it had also a tendency towards *genre*. Examples of idyllic subjects and *genre* abounded in the paintings at Pompeii, where we might also see in the decoration of walls the very style which Vitruvius described and objected to. The lecturer then explained a number of diagrams illustrating the progress of painting from extant examples, among which may be mentioned a figure drawn in an archaic style on an Athenian sepulchral *stele*. This curious example of early drawing is probably of not later date than B.C. 500. A figure of an athlete jumping is engraved on a bronze disc in the British Museum,—date probably about the time of Polygnotus. A fragment drawn on boxwood formed part of a casket found in a tomb near Kertch. The composition engraved on the Ficoroni bronze cista represented Amycus, king of the Bebryces, slain by Pollux. The mosaic found at Pompeii depicted Alexander and Darius at the battle of Issos. There was also a scene representing Niobe, Latona, and their companions drawn on marble, found at Herculaneum. A Roman mosaic represented a battle between a Centaur and wild beasts. Lastly, there was a Pompeian painting of Venus fishing.

HOW GREAT ARTISTS ARE MADE.

WHAT nonsense men scribble on art!
We're sick of their rhodomontade;
Let them turn their eyes to the mart,
Or handle the pick-axe and spade.

Nought know they of sculpture and models,
Of how artists chisell'd or drew;
They've not enough sense in their noddles;
They haven't the least *aperçu*.

Fine skill with mallet and chisel,
Comes not in a swoop from above;
'Tis only those who write drivel
Make genius descend like a dove.

Those touches yclept so divine,
From study come surely but slow
From work till the day doth decline,
Till taper burns dimly and low,—

Come not of intuitive flash:
Man's neither magician nor elf;
Come not of o'er-confident dash,
An easy belief in one's self.

They come not of untutor'd hand,
Of hand without training and aid;
Great artists must first understand;
Each touch and each stroke must be weigh'd.

They come of the resolute will,
From conquest of meanness and sin;
They come of that resolute will,—
That will, which determines to win.

They come by the process of years,
By might of attention and time,
By trouble, by failure, by tears,
By dint of a patience sublime.

METER.

A NEW SISTERHOOD HOUSE AND CHAPEL IN CAMBERWELL.

A SPACIOUS new building, of imposing proportions, is at present in course of erection in Wyndham-road, Camberwell, for the sisterhood in connexion with the Church of St. John the Divine, Kennington. The building consists of two distinct blocks, connected with each other by a corridor. The main building forming the "house," when completed will have a frontage to Wyndham-road 60 ft. in length. The materials of the elevation are red Suffolk brick, with Bath-stone dressings, the building being carried up to a height of 61 ft. to the apex of a central gable, and 55 ft. to the tops of two smaller gables on the east and west sides of the elevation respectively. The structure contains five lofty stories, including the basement, the windows to each floor being mullioned. There is a central Gothic porch entrance, 7 ft. 6 in. in width, projecting 7 ft. beyond the general face of the frontage. The building is carried to a depth of 39 ft., having to the rear a second frontage of an ornamental character, which overlooks a courtyard between the building itself and the other block containing the chapel beyond. This last-named frontage has large bay-windows in the centre, 17 ft. in width, projecting to the extent of 4 ft. The basement portion of the house for the sisterhood contains a refectory, 22 ft. by 19 ft., also a large kitchen, scullery, larder, and other apartments connected with the culinary department of the establishment. The principal entrance leads into a spacious hall on the ground-floor, on one side of which is the superior's room, an apartment 13 ft. by 15 ft., and on the opposite side is the waiting-room. Beyond these, on the opposite side of a corridor, is the community-room, 15 ft. by 18 ft., with class-rooms on each side. All the upper floors consist of bed-rooms, upwards of twenty in number, together with bath-rooms, lavatories, and every requisite convenience.

A corridor on the west side of the building, between 7 ft. and 8 ft. in width, and 25 ft. in length, leads from the house of the sisterhood to the chapel. On the east side of this corridor an ornamental bay-window, uniform with those at the rear of the house, overlooks the courtyard. The chapel is Gothic in character, and underneath is the parish room, attached to which is a kitchen and separate culinary appliances for furnishing teas and other refreshments to the necessitous in the district. There is likewise a separate entrance to the parish room on the north-east side of the building. The dimensions of the chapel for the private use of the sisterhood are 38 ft. in length by 18 ft. in width, in addition to an aisle 7 ft. wide. The interior of the chapel is intended to be elaborately fitted. All the woodwork throughout both the house and chapel will be stained and varnished.

The buildings together occupy a ground area of about 5,000 superficial feet. The architect is Mr. Frederick W. Hunt, and the contractor is Mr. Downs, of Union-street. Mr. W. Frankland is clerk of the works, and Mr. R. Handley the foreman. The building, which is now being covered in, is estimated to cost about 10,000*l.* when entirely finished.

EPPING FOREST AND THE RE-ERECTION OF TEMPLE BAR.

IT is tolerably well known that the re-erection of Temple Bar has, for some time past, been under consideration by the committees of the Corporation most concerned, and that Epping Forest, amongst other places, has been suggested as the site for again setting up the old City landmark. It is, however, now stated that two of the committees are at present at issue upon the subject, and that whilst the City Lands Committee are strongly in favour of its re-erection on a site in the Forest, and have unanimously passed a resolution to that effect, the Epping Forest Committee, on the other hand, are opposed to the proposal, and have passed an equally unanimous resolution that, in their opinion, Epping Forest is not an appropriate place for the re-erection of the Bar, and that the site to be selected should, as nearly as possible, be adjacent to the confines of the City. We understand that the matter will very shortly come under discussion at a meeting of the City Council, which will have to pronounce a final decision on the differences between the two committees. We fully agree with the Epping Forest Committee; the erection of Temple Bar in the forest would be simply ridiculous.

THE SKELDERGATE BRIDGE, YORK.

AMONGST the various public improvements which are being effected by the corporation of York, the erection of the bridge over the River Ouse at Skeldergate Ferry is one of the most important and costly. One of the principal items of expenditure has been the hydraulic machinery required to open the arch at the Castlegate side of the river, for the passage of boats trafficking on the Ouse. Had it not been for this, the river would have been crossed by one span, as is the case with the Lendal Bridge. The Skeldergate Bridge is the fourth by which the river is crossed in the heart of York. It is designed in the Tudor style. The central arch will have a span of 90 ft., those on each side 30 ft., while the land arches are each 24 ft. span; the height being 22 ft. 6 in. above summer level of river. As to the progress of the works, there is much which yet remains to be done before they can be called really complete. Most, if not all, of the stonework is finished, and the ironwork of all the arches, excepting that of the centre one, is in position. With regard to the large span, operations have now been commenced for the erection of a temporary platform, by means of which the girders may be fixed. Nearly the whole of the hydraulic machinery, which is from the famous workshop of Sir William Armstrong,

of Newcastle, is also laid down. With a view to the improvement of the navigation, a water-wall of considerable length has been made on the Castlegate side, widening the river at this point from 8 ft. to 15 ft. The wall extends from the bridge in the direction of the Blue Bridge about 220 ft., and towards Friars' Walls for a distance of 92 ft. The approaches from Tower-street and Castle Mills Bridge are also in a very forward condition. On the Skeldergate bank the improvement is no less apparent. A considerable amount of property has had to be cleared away, and it was likewise found that a portion of the old walls would have to be removed. This was done, and in order to preserve the ancient character of these historic defences of the city, a small tower has been erected at the foot of the steps adjoining Baile-hill. The clearances mentioned have enabled the corporation to make the approaches to the bridge on this side as complete as possible. All the property which is to fall has not, however, yet been given up to be demolished, but only a very short time must now elapse before this will take place. The whole of the works in connexion with the undertaking (reserving our opinion as to the removal of the old walls), appear to be of a very substantial character, and to reflect much credit upon the consulting engineer, Mr. G. G. Page, of London, and Mr. Styan, the city surveyor, under whose superintendence they are being carried out.

DEVONSHIRE HOSPITAL, BUXTON.

VERY large extensions have been made to this building, under the direction of Mr. R. R. Duke, architect.

The superficial area now provided for wards is as follows:—For males, 11,614 superficial feet; for females, 10,912 superficial feet; thus providing accommodation for 300 patients.

The outer form of the hospital is an irregular octagon, with an inner circular area of 164 ft. diameter; within this there is a circle of columns 138 ft. diameter, forming a colonnade, 13 ft. wide, all round this inner area. These columns, with their entablature, rise 25 ft. above the floor; and from this panel springs the dome, covering the whole of this area. The dome is formed of wrought-iron ribs, twenty-two principal ones, and twenty-two intermediate ones, secured at the foot to a wrought-iron plate rim and heavy cast-iron girders, connecting the inner area wall and the colonnade, and thus securing a perfectly firm base for the dome. The ribs rise to a height of 50 ft. from the base, or 75 ft. from the floor-line, and are there secured to a wrought-iron ring, 40 ft. diameter, from which springs a lantern light, also having 40 ft. diameter, and being 18 ft. high. On the apex of this there is an ornamental finial, 25 ft. high, thus giving a total height from floor to roof of lantern of 93 ft., and to top of finial of 118 ft. In addition to the lantern light above named, there are eight other sky-lights on the roof, at the base of the dome; and together they give 4,500 ft. superficial of light to the central hall. The superficial area of this hall is just half an acre; and it is capable of holding 6,000 people. Its cubic contents are about one million of feet, a remarkable work.

SALE OF LAND, FULHAM.

THE United Land Company submitted to public competition by auction last week, at the Windsor Castle, Hammersmith, 64 plots of freehold building land, being the first portion of "The Greyhound-road Estate," Fulham. Mr. Belton, secretary and auctioneer to the company, conducted the sale. For the plots, 16 ft. frontage and about 50 ft. deep, the prices given ranged from 69*l.* to 82*l.* each; the corner plot, of 20 ft. frontage and 53 ft. in depth, realised 134*l.* The six shop-plots, fronting on Greyhound-road, with frontages varying from 16 ft. 6 in. to 18 ft. 6 in. and a depth of about 80 ft., ranged from 156*l.* to 170*l.* each.

The sale was held under the usual conditions of the society, *id. est*, no charge for conveyance, or for roads and sewers, these having been constructed. There was a good attendance, and the acquirement of the property was keenly contested. The whole, which was disposed of in about forty minutes, realised the sum of 5,566*l.* Leaving out of consideration five plots which were much wider at the back than the front, in consequence of the position being a corner of the estate, the land may be stated to have been sold at 5*l.* 5s. 5d. per foot frontage.

MEMORIALS OF ROBERT RAIKES.

A STATUE of Robert Raikes, the founder of Sunday schools, has been set up on the Thames Embankment in the enclosed garden near the obelisk. It was unveiled on Saturday, July 3rd, last. It was designed and modelled by Mr. W. Brock, of Osnaburgh-street, and has been cast under the direction of Mr. James Moore, at the foundry of Messrs. Drew & Co., of Thames Ditton. The figure is of bronze, and 9 ft. 6 in. in height. The pedestal is of Cornish grey granite, and has been executed by Messrs. Freeman & Son, of Penryn. It bears the following inscription, which gives its history in a very concise form:—

"ROBERT RAIKES,
FOUNDER OF SUNDAY SCHOOLS,
1780.

This statue was erected under the direction of the Sunday School Union by contributions from teachers and scholars of Sunday Schools in Great Britain.
July, 1880."

The height of statue and pedestal together is 20 ft. 6 in. The figure is beautifully modelled, and stands well. The pedestal is on two steps, and produces an agreeable outline; in fact, the work as a whole must be pronounced very successful.

In Essex-street, Strand, hard by, another memorial has been set up to Raikes and other originators of Sunday-schools, going as far back as Cardinal Borromeo, in 1580, almost as if protesting against the position assigned to Raikes, placing him last on the roll instead of first. It is erected in the fore-court of Essex-street Chapel, and so placed that it cannot be seen excepting when in front of it. The pedestal, designed by Mr. Hugh Stannus, is of Portland stone and polished granite, and is surmounted by the figure of a boy (at present only in model) sitting on a school-box, holding a book in his hand, and looking upwards. The figure, also the work of Mr. Stannus, is characteristic, if somewhat small. The hands seem abnormally large. It is to be executed in marble.

ROYAL ACADEMY STUDENTS.

THE following gentlemen have been admitted:—

First-class Students.—E. J. Milner Allen, G. H. Coldwell, C. W. Davies, F. W. Kite, F. C. Lees, W. J. Millard, E. C. Shearman, L. Stokes, W. H. Wood.

Second-class Students.—A. M. Calderon, C. T. Fagg, J. B. Gass, A. Keen, W. F. Keen, W. R. Lethaby, E. A. Ram, B. A. Raves, E. W. Smith, T. D. Wheeler, C. C. Wilson.

Probationers.—W. T. Allen, H. R. Best, C. Burton, J. C. Carter, R. M. Gruggen, A. Hemingway, E. W. Jennings, J. N. Johnston, W. E. Lloyd Jones, E. Nevinson, J. F. Newton, F. Simpson, E. J. Slow, P. Thicknesse, G. W. Winchester.

DAMAGES AGAINST A DUBLIN BUILDING FIRM.

IN the Court of Exchequer here, before Mr. Justice Lawson and a common jury, *in re* William Byrne *v.* Michael Meade & Son, this was an action to recover damages for personal injury sustained through the alleged negligence of the defendants, extensive builders, of Great Brunswick-street, in this city. The case of the plaintiff, who is skipper of the yacht *Avalanche*, was that on the night of the 27th of February, when passing the new Town Hall, Kingstown, which is being erected by the defendants, a plank fell from off the scaffolding, hit him on the head, and inflicted such injuries as confined him to bed for five weeks afterwards. For the defence it was pleaded that the plank, which was secured with reasonable care, came down in a great gale the night before the Tay Bridge accident, and that the defendants were not responsible. His Lordship said the defendants, though not morally, were legally, responsible. The jury found for the plaintiff, assessing the damages at 40*l.*

Exhibition of Industrial and Art Productions, Manchester. — An International Exhibition of this kind is to be held under good auspices in the Agricultural Hall, Cornbrook, Manchester, in August and September next. Some particulars are given in our advertising columns this week.

SHARING COMMISSIONS.

MR. GLYNN, instructed by Mr. Walker, appeared for Mr. E. G. Wyatt, an architect, who sued for 10*l.* 18s. 1d., commissions due to him by Messrs. R. & S. Batstone, quantity surveyors, for whom Mr. Metcalfe appeared, instructed by Mr. Angier. Defendants paid 3*l.* 6s. 1d. into court, and the dispute was concerning an item of 7*l.* 12s.

Mr. Wyatt deposed that he had been for four years manager to Mr. Collins, architect, and work was frequently sent to the defendants. The arrangement as to commission was, that Mr. Collins had two-fifths of their commission on the work, and he as manager had one-sixth of the balance. This item of 7*l.* 12s. was a commission on quantities taken out with respect to Storn House.

Mr. Metcalfe, for the defence, stated that plaintiff had agreed to forego this item.

Mr. Glynn said the law knew nothing of the abandonment of a claim without consideration, and this plea was worthless, even if plaintiff had foregone the claim, which he denied.

Mr. Roland Batstone deposed that their commission for the Storn House was 90*l.*, and the plaintiff's share 7*l.* 12s., but there was difficulty about the payment of the account, and they were offered 64*l.* 14s. 6d. as a settlement. They consulted Mr. Collins, who agreed to take 12*l.* rather than have his client sued in the matter, and Mr. Wyatt said that under the circumstances he would have no commission at all.

Mr. Sydney Batstone stated that he was in the office with his brother and Mr. Wyatt, when, in talking of the matter, Wyatt said he would have no commission on Storn House, and walked out. His brother said he would prefer to pay, followed Mr. Wyatt, and when he returned said he had arranged to pay him. His share of the commission received would be 4*l.* 8s.

The jury found for the plaintiff for 4*l.* 8s. beyond the amount paid into court.

PAYMENT FOR QUANTITIES BY BUILDERS.

DIFFERENCES.

SIR,—I was very pleased the other week to see you again open your valuable columns for the ventilation of this vexed question.

I read the letter of Mr. Scott [p. 778, last vol.] with some interest, and beg to refer him to my former letter on this subject, which you so kindly published in your issue of February 7th, 1880, and there he will find I made a direct attack on the Metropolitan Board of Works which they had not the courage to defend.

I am not a member of the Builders' Society (?) (so called,—for I do not know of any great work, either good, bad, or indifferent, it has ever accomplished), but if it will give me an invitation, I will deliver a lecture on "The Foolishness of Builders and the Knavery of those with whom they deal."

With your kind permission, I will give my opinion of the only straightforward way for an architect to obtain tenders for his client.

After the drawings are completed, let the architect take out the quantities in his own office; then, instead of expending a large sum on lithography, use a papyrograph, or any one of the many modes for reproducing several copies, and so let the office-boy save his client some 20*l.* or 30*l.* When the quantities are ready, instead of advertising for tenders, invite a few builders he may know, or some few in the immediate neighbourhood of the work, instead of inviting "the tag-rag and bob-tail" of England to tender for, perhaps, an important building in London, and then to let some unheard of man from the North or South jump into notoriety by carrying out, perhaps, one of our largest London works.

I shall be slightly wandering from the subject-matter in hand, but you will, I trust, pardon this digression, when I tell you how disgusted I feel to see such things before me as appear in your issue of May 8th, 1880, which happens to be lying before me. The first in the list of tenders is for the erection of the Staines Town-hall, where twenty-four builders compete for a 5,000*l.* job. See the result! The highest, that of Messrs. Oades & Sons, amounts to 7,222*l.*, while Mr. Brunsden accepts the contract for 4,797*l.*, a difference of 2,425*l.*, with *quantities supplied*. The next list of tenders is even far more startling; but in this case quantities were *not* supplied, in which case the builders might have been stupid enough to cube the building (the most idiotic piece of performance I can imagine), when nothing better could be expected than Lidstone, 3,711*l.*, Temple & Foster, 1,845*l.*, a difference of 1,866*l.*

Now, had the architects acted upon the principle I have suggested, this, I feel sure, would not have happened.

By-the-bye, I do not quite understand why quantities cannot be issued for road-making and drainage works, so avoiding the great difference in the tenders one almost always sees when-

ever drainage works, &c., are put to competition and the lists of tenders made public.

I noticed something last week I cannot pass over, and it seems still more glaring and disgraceful than anything I have seen for some time (although I could enumerate instances by the dozen); it is for repairs, &c., at the Lion Brewery. Sharpe & Mills ask 3,330*l.*, and Mr. Allen 604*l.*,—a difference of 2,726*l.* No quantities supplied, it is true; but who is to blame? Some one, surely. I scarcely like to offer any suggestions, such as a vague specification, &c., but will simply confine my comment to the injustice of taking up the valuable time of some ten or twelve builders, and causing them to neglect other important work, or a useless expense in paying a clerk to plod through perhaps a long specification, and trudge up and down stairs probably *all* over a gigantic building like the Lion Brewery. I may add, *en passant*, that I hope the beer is not the culprit; it could not have been the weather, and I should scarcely think it was the change of Government.

I am acting wrongly in jesting upon a subject so serious, but I am anxious for both architects and builders to agree that either builders should be paid for their time in giving a tender, or quantities should be issued, which ought only to involve a small amount of time and expense.

I do not wish to ventilate all the grievances, imaginary and real, under which builders labour; for the reason that they are unfortunately far from perfect themselves; what I do wish to do is to obtain a remedy for some of them.

ELLIVREMOS.

ON THE ADJUSTMENT OF PROPORTION TO SIZE.

SIR,—The suggestion of "Meter" is ingenious because it seems so simple, but it is scarcely conclusive. "Distance," he may read, "lends enchantment to the view," and objects lessened by distance may not have their effects under the same law as those produced by mechanical reduction. If "Meter" will visit the Elgin room of the British Museum, he will see proportions, in the half-scale figures of the frieze, which he would hardly welcome in statues of heroic size. He may be sure that there are some grounds for what "Toreuticos" alleges; and that the question of agreeable proportions varying with scale in the higher departments of formative art is not so much "in a nutshell," or so easy to crack, as may be supposed by some. It may be one of the *nugæ*, or rather *nuces difficiles*, and yet no trifle. It is just one of such matters as, by affording a corner to the discussion of it in your columns, enable you to confer a boon on art.

B.

MR. RUSKIN AND BAD WORK.

SIR,—Will you grant me space in your paper to say a few words relative to Mr. Ruskin's tirade against shoddy and "scamped" workmanship? It must be highly gratifying to every workman of taste and culture (and there are many such in all branches of trade) to find such an authority as Mr. Ruskin declaiming against inferior workmanship and shoddy products. In writing to Mr. Holyoake, he imputes too much blame to the British workman as being eager to do bad work, and rob his employer on the sly. The labour market abounds with men who, through incapacity and want of application to generate and cultivate a love of taste in themselves, are necessarily bad workmen. On the other hand, there are plenty of workmen to whom, even in their own particular occupations, "a thing of beauty is a joy for ever." Such are essentially good workmen, and will try to make the best possible job of everything they take in hand, if permitted to do so by their employers. Workmen do bad work either through inability to do good or through a desire to make as much money out of the job as possible, which is the case when the work is sublet to them, or because their employers demand quantity instead of quality; but no man does bad work for the mere sake of doing bad work, as Mr. Ruskin would have us believe.

The British workman of to-day will compare favourably with the mechanic of any age or nation. If it were not so, of what avail would be our numerous technical classes scattered all over the kingdom, the science and art schools, and the bulk of technical journals that teem weekly from the press? Let our architects exact good work, and they will find skilled workmen not wanting in ability to rear the "cloud-capp'd towers, the gorgeous palaces, the solemn temples," which, in delicacy of touch and finish, shall vie with the grand architectural monuments of ancient Greece and Rome.

J. F. WALKER, Bricklayer.

LODGINGS IN LONDON.

FLATS.

Sir,—Allow a mechanic to tell "A Working Man" what living in some flats in London really is. Let him go through London and look at the vast dismal blocks of bricks and mortar without a single redeeming feature of cheerfulness or the picturesque. To secure a comfortable and healthy home I went to live in a block at Kensington, and took (having only a wife) one of the smallest suites—a room and a half. For this I pay 7*s.* 6*d.* per week in advance—*i.e.*, 5*s.* per week per room. The occupants before me were a man and wife and five children. The place, when I took possession, was dirty and swarming with vermin. No water could be turned on to the w.c. The top of the boiler was cracked, and worn in holes, so that the water was black with soot. The tap leaked so fast that the place was often flooded. After repeated applications, and waiting for months, the Cerberus of the "Improved Dwellings" came, grunted out that he was not going to wait on people, and plastered the holes with whitelead in an almost liquid state. In another two months he repaired the tap so that it would not turn at all. The sides of the chimney that were nearly falling down he only shook his head at. The duty of this official is to let the rooms; receive 5*s.*, independent of the rent to cover any damage that may have happened to the fixtures (which are of the most obsolete pattern and inefficient kind); answer no questions, give no information. There is another official who comes to the minute every Monday to receive the rent in advance. This is his only duty, which takes about half a minute per tenant to perform. The owner lives in a palatial residence, with a retinue of twenty servants. To attempt to make any acquaintance with him is certain dismissal. I have been here nearly a year, and no sanitary inspector has ever called; in fact, he dare not enter the place, except to give a highly flattering report, as occasion may require.

Now, sir, I contend these places are in many instances much worse than the small houses and cottages they are supplanting. They are owned by wealthy individuals, companies, or corporations, and the sanitary inspector, who is always overhauling the small capitalist, dare not criticise these places. Again, the tenant, in case of grievance, can appeal direct to the landlord, who, in many instances, comes himself for the rent. In the block system, some Jack-in-office is interposed to do the dirty work. And, lastly, the exorbitant rent charged for the tenements intensifies the very evil they are supposed to remove,—overcrowding.

Is it not a delusion to pretend to elevate the working classes, and at the same time allow this state of things to exist? Of what use are School Boards, magnificent schools, and churches, and all the institutions for the improvement of the masses, when home, even in the lowest sense, is made an impossibility to the industrious by the greed of the very class who profess to care so much for the advancement of their fellow creatures? Here in the richest part of London, with a royal palace and gardens, a magnificent parish church, and town-hall lately erected at a cost of many thousands, and also teeming with institutions patronised by royalty, there cannot be found any public-spirited people to erect plain and comfortable homes for the working classes, not as a charity or gift, but as a matter of business to return a fair dividend on the money laid out. The way the working classes are, in many instances, herded together here is a disgrace to any civilised country; and this in the richest part of the metropolis of the Christian world.

A POOR MECHANIC.

PROVINCIAL NEWS.

Hereford.—The foundation-stone of the new Foresters' Hall and Working Men's Club here was laid on the 14th ult. The premises consist of two dwelling-houses in Widemarsh-street, Hereford, the upper floors of which will be used for club purposes. The Assembly Hall will be erected in the rear of the club premises. It is intended to seat 500 persons. The style of architecture adopted is an adaptation of Romanesque. The tender of 800*l.* submitted by Mr. Thomas Lewis, builder, Hereford, has been accepted for the execution of the work, which is to be carried out from designs by Mr. Geo. Cowley Haddon, Hereford and Malvern, architect.

Rossendale (*Lancashire*).—The prospects of the building trade are reviving in this district. The parish church of St. Mary's, Rawtenstall, is to be enlarged and partially restored from the designs of Mr. L. Booth, of King-street, Manchester. Other works which the same architect has in progress in the neighbourhood are three large blocks of middle-class dwelling-houses for the Rawtenstall Industrial Society, a constitutional hall and club-house at Stacksteads; schools, &c., for 700 children in connexion with Trinity Church, Stacksteads; and schools for 600 children in connexion with the new district of St. John's, Rawtenstall, the latter to be followed by a church and parsonage-house. All the buildings are being erected of the excellent stone for which the district of Rossendale is noted.

Newcastle-on-Tyne.—Extensive stables are in course of erection in Percy-street, for the Tramway Company. The new range of stables stands on what was known as the Percy Gardens. The site is of an irregular shape. The buildings, which cover nearly three-quarters of an acre, are approached through George-place in the Haymarket, entrance being obtained by a bold archway, through which the cars coming from north or south, and crossing the Haymarket by the line now being laid down, pass to the numerous lines and sidings to be laid in the car-sheds. There are three car-sheds, one of 43 ft., one of 28 ft., and one of 16 ft. span. These will shelter about twenty cars, and the lines in the open yard will give standing-room for twelve more. Adjoining is a spacious workshop, having sidings for cars under repair, one of the sidings being over a sunk pit, which will give facilities for repairing the bottoms of cars. The stables are built in two ranges, the east range being divided into eleven compartments, one of four loose boxes, one of eight stalls, and nine of ten stalls each, the idea being to keep each man to his own horses, for whose proper management he can be thus better held responsible. The west range is one long stable of ninety-seven stalls. It was originally intended to arrange this group also in compartments of ten each, but the lessees, looking forward, are prepared to convert this range into an engine-shed should steam come into general use for tramways. An arch has been formed in one end wall with this object, capable hereafter of being opened out, the stable-fittings removed, and lines laid down for steam-cars. The whole of the doors to the stables run on top-rails, suspended by Hatfield's patent rollers. The work is being carried out from the designs and under the immediate superintendence of the architect, Mr. Edward Shewbrooks, Newcastle, by Messrs. Middlemiss Brothers, of Corbridge; Mr. Humphrey Atkinson, of Blaydon; Mr. John Pattison, Messrs. C. and G. Nicholson, and Mr. John Whitelaw, Newcastle, the contractors for mason and bricklayer, carpenter and joiner, plumber and gasfitter, slater and painter, and glazier works respectively.

STAINED GLASS.

Highbury.—Messrs. W. James & Co., Kentish-town, have just placed a stained-glass window in St. Augustine's Church, Highbury New Park, for Mrs. Hextall, of Canonbury House, Canonbury-square, in memory of her late husband, Mr. Henry Clay Hextall. The same firm have also done some decorative work in the church.

Yeadon. — Yeadon Town Hall has, by the liberality of Messrs. J. M. Barwick, of Low Hall, and A. Brayshaw, of Yeadon, been provided with two large six-light stained glass windows designed and executed by Messrs. Powell Bros., Park-square, Leeds. The subjects are illustrative of the staple woollen cloth industry of Yeadon. The one exemplifies sheep-shearing, following the description, by Thomson, the poet of the "Seasons"; the sheep lies "bound," and is being "of its cobe bereft" by the "tender swain's well-guided shears." The companion-window portrays antique spinning and weaving in simple forms. The loom, verified in and copied from the British Museum Antiquities, is one which is believed to have been common to the early Syrians and the East, and to the Egyptians; and such as is probably yet to be found in the tents of the Arabs of the Sahara, and in the huts of the Impongwe and other native tribes of West Africa, whose cloth is woven from palm-fibre. Over this loom a Syrian man bends at his work; by his side sits a Syrian woman supporting a distaff with one arm, whilst her hands are engaged in spinning with a spindle according to the fashion in vogue before spinning-wheels were. Ten blazons of arms enframe the subjects, including those of York county and the Clothworkers' Company, and riband legends, traversing the open but enriched spaces, record the dedication of the gifts to "the people of Yeadon."

Pensford.—The east window of Pensford Church has been filled with the subject of the Transfiguration, in stained glass. The figure of our Lord occupies the centre of a glory, Seraphim and Cherubim in bright apparel holding converse with Moses and Elias, who stand on the right and left of our Lord, the one with the two tablets and the other with the camel's-hair robe illumined with the radiance of the central figure. Divided from this group by a band of clouds are the Apostles John, Peter, and James. The window was executed by Messrs. Camm, Brothers, of Birmingham.

PARLIAMENTARY JOTTINGS.

The Houses of Parliament.—In the House of Commons on the 1st inst., Mr. Schreiber asked the First Commissioner of Works when he intended to complete the mural decorations of the Central Hall of the Houses; whether he was in possession of the designs for the three vacant panels, and at what cost each panel could be filled in with mosaics? Mr. Adam.—The question as to the best mode of filling in the vacant panels in the central hall has given rise to much discussion, and was very fully inquired into in 1870 and 1871, but no definite conclusion was arrived at. I am of opinion that the vacant spaces should be filled up, but I am unable, without further consideration, to state when this can be done. No designs exist for the vacant panels. The cost of the panel already filled in was about 675*l.*, but I am unable at present to say what will be the cost of filling in the vacant panels.——On the same day, in answer to Mr. D. Grant, Mr. Adam said,—The question of lighting the House and approaches by the electric light has received and is receiving careful consideration. I will take care that it continues to receive full attention, but I am not prepared at present to recommend any definite course of action on so important a question, involving much change and alteration of existing arrangements, and which ought not to be finally adopted without going through the test of careful experiment.

The National Gallery.—Mr. Coope asked the First Commissioner of Works whether he was able to lay upon the table of the House the resolutions adopted by the Trustees of the National Gallery as to giving increased facility for admission to the public; and whether he was prepared to state what action the Government was willing to take in the matter. Mr. Adam.—The copy of the resolutions passed by the Trustees of the National Gallery, and their remarks explanatory of them, have been laid on the table of the House, and will shortly be printed. The initiative in this matter rests with the Trustees, and not with the Government; but the latter will be prepared to consider any proposals that may be made to them on the subject, with the view of giving, if possible, increased facilities to the public and students.

UNDERGROUND RAILWAY COMPLETION SCHEME.

THE Metropolitan and Metropolitan District (City Lines Extension) Bill was under consideration last week by a committee of the House of Commons. For the promoters, the first witness called was Sir Edward W. Watkin, M.P., chairman of the Metropolitan Railway Company, who went at length through the various negotiations which had taken place between the promoters and the Corporation and the Metropolitan Board of Works, for the joint construction of the railway and the new streets He said that 400,000*l.* was offered towards the widening of Eastcheap and Great Tower-street, a length of about 670 yards, and this he considered to be a "monstrously liberal" proposition from two small companies, with a large burden on their backs, who were the largest ratepayers. Their proposal was, however, refused, and they were asked first to make streets, which they had no business to do; and secondly, to take the whole risk of making these streets, as regards compensating all the City people whose cases would be brought before the Lord Mayor's Court. This they could not do, but they ultimately agreed to give 50,000*l.* more, or to pay a rent of 50,000*l.* a year if the public bodies would make the streets, the railway, and the stations. If, in order to make this railway, they had to pull down the most valuable property in the City, it would not be done. Therefore they must do one of two things,—either go under the property where necessary without pulling down, or they must have such a contribution from the public who make the streets as would pay for pulling the property down. The railway companies paid rates to the amount of 35,000*l.* a year, though they did no damage to the upper surface or streets, or anything else, and there was no obligation upon them to make streets with their shareholders' money; but their object was to follow the intimation of the joint report of 1864-5, and do their best to co-operate in a great public improvement; and he was enthusiastic enough to feel that it would be a grand thing to stand on the steps of St. Paul's and look down a fine street to the Tower. But, as it appeared there were to be no new streets, they came now to Parliament to get power which would enable them to make the railway without streets, as every conceivable attempt on their part to induce the great public bodies to do what was right and just had failed. By the Bill they sought power to burrow under City property without being compelled to take the whole of it; and in cases where they went through the basement or sub-basement to compensate only those whom they disturbed, without being compelled to pay compensation also to the tenants of the ground-floor or upper stories, whose business was not affected.

Mr. J. Wolfe Barry, engineer to the railways, stated that, as the width of Eastcheap was only 34 ft., and Great Tower-street only 24 ft., and the width required for the railway tunnel was 38 ft. to 40 ft., they would have to go under some of the houses, as the street was not to be widened. There was no engineering difficulty in doing this without disturbing the tenants, or any other portion of the buildings than the cellars and basements through which they passed. If they did not burrow, but were compelled to pull the houses down, it would involve immense sums for compensation. In a house at the corner of Mark-lane there were thirteen occupiers, and on the other side nine occupiers; in the next house there were eleven occupiers, and on the opposite side of the street thirty-four occupiers, none of whom would be interfered with except the occupiers of the basement and sub-basement. The tunnel would be about 10 ft. high in the cellars to go under the street. They did not take the ground-floor in any case. They would in some cases interfere with the traffic during construction.

Sir J. Hawkshaw, the joint engineer of the line, gave similar evidence, and said that in his judgment the interests of the owners and occupiers were amply protected. Work could be carried on in the upper stories of the houses during the whole time of construction. In making the East London Line there had not been a single crack in consequence of the burrowing. If vibration were caused it would be a matter for compensation.

Mr. Barlow, president of the Civil Engineers, said the effect of the railway would in many cases be to put good foundations where they were now defective. If the works were executed properly there was no fear of subsidence.

Mr. Forbes, chairman of the Metropolitan District Railway, gave similar evidence to that of Sir E. Watkin, and said they were not prepared to risk the responsibility of obtaining property from the new street upon the terms which had been indicated by the public bodies. The sum which their surveyor estimated would be required for the purchase of lands by the City and Metropolitan Boards was 1,080,000*l.* That was part of a much larger sum attributable to the formation of a street.

Mr. Ritchie, surveyor to the companies, gave instances where great saving would be effected by burrowing instead of being compelled to take and pull down valuable premises containing large numbers of tenants. In Great Tower-street, in almost every case there would be no disturbance of business. He had not found people unwilling to build over underground railways. He instanced Victoria-street as a place where mansions were built over a railway. That was precisely the same position which these offices in the City would occupy. In cross-examination he said the line could not be constructed unless it was done on the most economical principles. His estimate was 1,171,000*l.*, on the basis of the properties having to be purchased and businesses compensated for.

This evidence practically concluded the case for the promoters of the scheme, which is opposed by the Corporation of London, the Metropolitan Board of Works, and several of the City companies.

The Bill again came before the Committee on Tuesday last, when evidence in opposition to the scheme was given.

Mr. Hyman Henry Collins, architect, examined on behalf of the Metropolitan Board of Works, said he was district surveyor of the eastern division of the City of London, and surveyor under the Dangerous Structures Act. He viewed with apprehension the powers claimed in this Bill for going underneath the houses and not pulling them down. That course did not commend itself to him as a thing which might be safely and wisely done. It would greatly increase his duties, and entail very heavy responsibilities upon him. Many of the houses are very old, with shaken, bulged, and defective brickwork; they are tied in with iron ties, most of them from time to time altered, cut about, the brickwork cut away, and generally rendered very weak in construction; part of them have at the present moment the basement timbers shored up. The party-walls of these old houses, as a rule, particularly in this immediate locality, are generally filled in with decayed timbers, and the bricks composing the walls themselves are ordinarily found to be of a soft red and rotten clay: they crumble, and you can pulverise them. Another question of very great importance in the City is that there are chimneys built outside sometimes as much as 4 ft. wide; the chimney-breasts have been cut away on the ground-floors in order to obtain space, and really an overhanging mass has been left to drag on the party-walls. In addition to that, the party-walls themselves are only 14 in. thick, and sometimes, higher up, only 9 in. thick. Very often the whole of the back walls are entirely carried on girders and iron columns, and many of the front walls are entirely of iron and glass construction. That, by concentrating weight on certain points, adds another element of danger. The soil in the City, especially in this part near the river, is of a particularly treacherous nature, and sometimes he had gone down himself in those old buildings, and those which he had to survey, and he had found as much as 20 ft. or 30 ft. of *débris* and earth. In consequence of the nature of the ground, the walls are in some places supported on timber or plank foundations. These old buildings have been newly-faced in many instances. They are in no way bonded up by brickwork, and the slightest disturbance cracks them from top to bottom. If it was attempted to underpin those old buildings he thought they would inevitably fall, whatever care might be taken. His everyday experience told him this would be the case. He should be sorry to say that works going right through the middle of the basement and cellars of houses could safely be carried out. Judging from hundreds of houses, he never knew an instance in which there was not some slight settlement where an underpinning had taken place. He referred to work executed under able architects and engineers, such as Colonel Haywood, the engineer to the Commissioners of Sewers, Messrs. Mowlem & Burt. He knew instances in the City where the foundations, since they had been underpinned, were still sinking.

Mr. Reginald Roumieu, architect and surveyor, said his father was architect of Messrs. Hill, Evans, & Co.'s premises in Eastcheap, and he described them in detail. It was a heavy building, of a very strong and substantial character. It went down 19 ft. to the top of the foundation. The effect of making a railway under the front wall would be such that he should not like to guarantee its stability. He agreed with Mr. Collins's evidence very much.

Mr. Thos. Tayler Smith, architect and surveyor, called on behalf of the Cutlers' Company, described their property at the corner of College-hill and Cloak-lane. The Cutlers' Hall and adjoining houses were over 200 years old. They were fairly well built, but were very old. He thought oscillation would tend to bring them to the ground, as they had very small piers. Tenants of the company in Houndsditch had complained to him of the effects of the underground railway. The Metropolitan Railway runs within 10 ft. or 11 ft. of 1, White-street, and the oscillation was very great indeed. It was the property of the Cutlers' Company. In Blomfield-street the shaking of the premises was such that it prevented his taking offices there.

Mr. Price, estate agent and surveyor (of the firm of R. Ellis & Son), examined by Mr. Michael on behalf of Sir H. W. Peek, the Drapers' Company, Mr. Jeremiah Colman, and others, said since the passing of this Company's Act of 1874 he had found great difficulty in dealing in any way with the property in Great Tower-street or Eastcheap, either in letting or re-arranging leases. At present his firm had between 6,000*l.* and 7,000*l.* a year to let in those streets. He knew no street in which there was so much property to let as in Great Tower-street. Clients often refused to look at anything in the street because they would not go into a property likely to be taken by a railway company, or where they would suffer annoyance from the construction of works. In

one case they had to reduce the rent from 150*l.* to 110*l.* solely in consequence of the dread of this railway coming.

Mr. Charles Riley, of St. Swithin's-lane, surveyor to the Drapers' Company, said he thought their property would be deteriorated in value by this railway, as it would affect the stability of the buildings. The damage would be very difficult to ascertain for some time. He feared there would be very considerable settlement of the buildings. Basements were very valuable accessories to other parts of the property, and particularly in this vicinity. In some premises occupied by wine-merchants the basements were 20 ft. deep. It would be difficult to construct such cellars near to a railway tunnel. The Drapers' Company had eight houses at the Corner of Philpot-lane and East-cheap. The lease expired Lady Day, 1879. They were re-let at a considerable increase on the letting twenty-one years ago, but as a matter of fact one of the tenants was now paying less than he paid on a sub-lease taken twelve years ago, so that there really had been a depreciation.

The proceedings were again adjourned.

TERRIBLE GAS EXPLOSIONS IN LONDON STREETS.

THE neighbourhood of Tottenham Court-road was on Monday evening the scene of a series of terrible explosions of gas, which killed two men, seriously injured many other persons, and wrecked as though by bombardment a large number of houses. This calamity occurred in the district between Bayley-street (formerly Bedford-street), on the east side of Tottenham-court-road, and the northern end of Charlotte-street, Fitzroy-square, a distance of over half a mile, along which route new gas-mains, 36 in. in diameter, have just been laid down by the Chartered Gas Company in renewal of their old supply system. The work of laying these mains has occupied a considerable time, and was in the hands of two different contractors, the junction of the eastern and western ends being intended to be made in Bayley-street, near the spot where it joins Tottenham-court-road. The undertaking was nearly completed. On Monday evening, two men, named Alfred Davis and William Burr, were in charge of the Bayley-street ends of the mains. Various suggestions have been made as to the way in which the charged mains were fired. All that is known for certain is that about seven o'clock there was at the Bayley-street junction of the pipes the flash of an explosion and the rising of a vast amount of flame into the air. This was immediately followed, at about 40 yards' distance, in Percy-street, by the upheaval of the ground, the throwing up of the paving-stones, and the rending down of the iron palings before the houses, accompanied by a rumbling like that of distant thunder. Before the beholders could turn, at the distance of about another 40 yards, the same thing occurred again, flame bursting from the earth. The explosions shook the adjoining houses, and damaged them from the foundations to the roof. These explosions followed each other from east to west. Fifty yards from the third explosion, in a north-westerly direction, is the southern end of the long thoroughfare known as Charlotte-street, Fitzroy-square, and at the junction of this street with Percy-street a horse and cart came past, driven by a man, as the third explosion occurred. The horse started and rushed on just sufficiently to save itself and the driver from the ruin of a fourth explosion, which occurred opposite Nos. 1, 3, and 5, making a terrific gap in the street, exposing the whole foundations of the houses, and casting up the contents of the underground cellars. The next explosion did not occur for nearly 80 yards further, where, opposite Nos. 27 to 31, another upheaval of the street occurred, a burst of flame, the shaking of houses, and the laying bare of the foundations following in a similar manner. Between 200 and 300 yards from this spot the gas again exploded, downwards as well as upwards, bursting-in the sewers, destroying the water-pipes, and very greatly damaging the houses. The seventh explosion was in the four-cross way formed by Howland-street crossing Charlotte-street. East and west a large main runs, of the same dimensions as that down Charlotte-street, which it receives. Part of the Charlotte-street main burst in the middle of the road, upheaving the earth, but causing here no other damage. This last explosion appeared to nearly exhaust the gas, for though there was at other places a sinking in the ground showing indications of explosions, there was no further casting up of fire and earth. The unfortunate man Alfred Davis was taken to the Middlesex Hospital, and was pronounced by the house-surgeons, Mr. H. Smith and Mr. Palmer, to be dead. His companion, William Burr, aged 30, had his leg amputated in the same institution, and died on Tuesday morning. There were also admitted into the hospital several persons who were injured by the explosion.

The damage to property was extensive. Nos. 15, 16, and 17, Percy-street, at the scene of the second explosion, are more or less damaged. At Nos. 6 and 7, opposite to which the third explosion occurred, the foundations are laid open, and the front of No. 6 presents a wrecked appearance, and No. 5 has also sustained great damage. The roofs of these three houses are injured by the paving-stones, which were hurled up with terrific force from the road. The fourth explosion wrecked the lower parts of the houses Nos. 2, 3, and 5, Charlotte-street; the fifth shook very much the houses numbered 27, 29, and 31; while the sixth damaged Nos. 103 and 105. A great part of the neighbourhood was without gas for some hours, and from this cause the performances at the Prince of Wales's Theatre had to be stopped.

However this terrible occurrence is to be accounted for, it is remarkable that the explosions, occurring as they did at intervals along a route which crosses so crowded a thoroughfare as the Tottenham-court-road, should not have been the cause of a much greater loss of life.

The St. Pancras Vestry held a special meeting on Wednesday, and after viewing the scene of the calamity, and discussing it in its legal aspects, resolved,—

"That Mr. W. B. Scott, chief surveyor, be instructed to report fully on the circumstances connected with the recent explosion in Tottenham-court-road, Percy-street, Charlotte-street, and Howland-street, especially as regards the extent of the damage done to the property and works in the charge of the Vestry, including as they may be affected by the damage done to the various vaults, walls, and the areas of the houses along the line of the casualty, such report to be accompanied by such plans as may be necessary to illustrate the recital of the circumstances."

THE EMPLOYMENT OF CORPORATION ARCHITECTS.

THIS subject was discussed at length by the Birmingham Town Council on Tuesday last, and evoked an animated debate. Alderman Heaton moved:—"That the General Purposes Committee be instructed to inquire into the desirability, or otherwise, of appointing an architect who should undertake the whole of the Corporation work, except on such occasions when it may be deemed desirable to invite the assistance of professional gentlemen having special qualifications for what may be required. And with a view of enabling the Council to come to a decision on the matter, that the committee report the amount of architects' commissions that have been paid for the various works during the last five years, and the probable liabilities for architects' commission upon contracts now in course of execution." He contended that there was considerable dissatisfaction in the town with the existing system of employing one firm of architects only, and of not resorting to public competition. It was felt that by taking this step, and at the same time paying the usual commission of 5 per cent., the Council were really paying retail prices for wholesale orders.

The resolution having been seconded by Mr. Brinsley, Mr. Cook moved, as an amendment,—"That the General Purposes Committee be instructed to consider the present system of obtaining plans and estimates for the erection of buildings for the Corporation, and to report whether it is desirable that any change should be made in such system by the appointment of a borough architect or otherwise."

Alderman Kenrick seconded the amendment, and expressed the opinion that the various corporate committees should be empowered to make their own selection of an architect to carry out such work as they might desire to have executed. He objected strongly to the appointment of a borough architect.

Alderman Collings, M.P., had no objection to vote for the amendment, but held that any alteration of the present system would be prejudicial to the public service.

Mr. M. Davis said there could be no doubt as to the dissatisfaction in the town with regard to the Council giving all the work to Messrs. Martin & Chamberlain. They had no doubt done all that had been entrusted to them well, but why should they enjoy a monopoly of the public work to the exclusion of all other architects?

Alderman Biggs remarked that the Corporation for the last five or six years had been paying about 2,000*l.* or 3,000*l.* to architects, and he thought they could well afford to pay an accomplished architect,—a man of good reputation,—1,000*l.* or 1,200*l.* a year, and be 1,000*l.* a year the gainer. He did not say this question should be jumped to without some consideration, and he was willing that the matter should be well considered by the General Purposes Committee.

After considerable discussion, Mr. Cook consented to insert in his amendment the words "and report upon," after the words "that the General Purposes Committee be instructed to consider," and this alteration having been accepted by Alderman Heaton, the latter withdrew his motion, and Mr. Cook's proposal was carried unanimously.

SPECULATIVE THEATRE-BUILDING.

IN RE THE ALCAZAR COMPANY.

A PETITION was presented (Chancery Division, High Court of Justice) for the winding-up of this company by Mr. Edward Louis Paraire, architect, as a creditor of the company for a large sum of money alleged to be due to him for preparing plans, and for consulting with the company as to the buildings intended to be erected. The company was incorporated in September, 1878, for the purpose chiefly of erecting upon the freehold ground on which Saville-house, Leicester-square, formerly stood, a spacious theatre of varieties, containing a *café* and *restaurant*, where it was intended to have dramatic and musical performances, with popular interludes, and attractive histrionic varieties.

The petitioner stated that he had prepared plans and elevations of the proposed building, and had assisted the directors with his advice and experience as to the manner in which the building operations should be carried out, and that he had obtained tenders from builders and contractors for the construction of the theatre and restaurant, according to the plans prepared by him. During the whole of the period from the incorporation of the company down to December, 1879, he had been summoned to the meetings and consulted by the directors of the company as their architect, with reference to carrying out the undertaking, and they availed themselves of the plans and measurements which he had prepared. Since December, however, the Board of Directors had declined to accept any of the tenders for the construction of the building which he had obtained, and had entered into negotiations with another architect, and they had declined to carry out the building for which the plans were prepared. The petitioner had consequently sent in his claim for the debt due to him, amounting in the whole to 2,960*l.*, and he alleged that the company were unable to pay the amount due to him and to other creditors, and that the company ought, therefore, to be wound up under the direction of the Court.

The petition was opposed by the company, who alleged that the charges made by Mr. Paraire were excessive, and they disputed the debt, but they had offered him 500*l.* in settlement of his claim. They denied entirely that they were unable to pay the amount, and stated that the subscribed capital of the company was 23,350*l.* and it was calculated that when the building was erected a large profit would accrue to the shareholders. The building to be placed on the site was now being erected, and considerable progress had been made with the work, and it was expected that the building would be opened in October next. Under these circumstances they opposed any attempt to wind up the company by a person whose alleged debt was disputed, and who could bring his action to establish any debt which might be justly due to him.

The Vice-Chancellor (Malins) said it was evident that there must be a considerable sum of money to which Mr. Paraire was justly entitled. Even the prospectus contained a representation of the building intended to be constructed, which, he was told, had been prepared from the plans furnished by Mr. Paraire. However, it was impossible for the Court to make a winding-up order upon the petition of a creditor whose debt was wholly disputed. He should, therefore, direct the petition to stand over until the petitioner's claim should have been established in an action.

EMDEN *v.* CARTE.

THIS was an application, arising out of the building of the proposed new theatre in the Strand, for an injunction on behalf of the plaintiff, who was the architect employed to prepare plans, &c., to restrain the defendant from using the plans and drawings prepared by the plaintiff.

Mr. Glasse, Q.C., in moving for the injunction, stated that the plaintiff had not yet been paid for the plans and drawings of the theatre proposed to be erected by the defendant in Beaufort-buildings. It appeared that the defendant now expressed an intention not to make use of them, and if so, there the matter might end for the present.

Mr. Higgins, Q.C. (for the defendant), said he did not intend to use them, and should, in fact, be very glad not to do so.

Mr. Glasse.—As his lordship said this morning, "That is an ungracious remark."

Mr. Higgins.—Of course if we do not use them we shall not pay for them.

Mr. Glasse.—Nobody asked you. I shall show at the hearing that I am entitled to be paid for the work I have done.

Mr. Higgins said the true object of the motion was to prevent the defendant employing another architect.

Mr. Glasse desired to prevent the defendant injuring the plaintiff's professional character.

After some further discussion, an understanding was given by the defendant that the plans, &c., would not be made use of pending the trial of the action.

DISTRICT SURVEYORS' FEES.

At the Marlborough-street Police Court on Thursday, the 1st inst., before Mr. Man-field, Mr. Alfred Stonor, of 61, South-street, Grosvenor-square, appeared to an adjourned summons taken out by Mr. Robert Kerr, district surveyor of St. James's, under the Metropolitan Building Act, to recover a fee of 1*l.* 15s. Mr. J. A. Alsop, solicitor, appeared for the defendant.

Mr. Kerr said the defendant had executed some works at 18, St. James's-place. These works included the fixing of some hot-water apparatus. By the Building Act, section 21, paragraph 4, it was provided that no pipe for conveying hot water should be placed nearer than 3 in. to any combustible material. Mr. Stonor had in this case fixed the pipes nearer than 3 in. to woodwork. Witness communicated with him about this violation of the Act, and he promised to amend the work, and ultimately did so to witness's satisfaction. Witness then sent in his claim for his fee, which Mr. Stonor had neglected to pay, and hence this summons.

Mr. Alsop, for the defence, took several technical objections to the summons, all of which the magistrate overruled. He then went into the merits of the case, contending that, by the 9th section of the Building Act, 18 & 19 Vict., such work as that executed by Mr. Stonor in this case was excepted. The words were "Any alteration or addition or other work made or done for any purpose *except that of necessary repair not affecting the construction of any external or party wall* in or upon," &c.

Mr. Stonor, the defendant, said what he had to do was to take down the lead hot-water pipes and to put up iron pipes instead, in consequence of the lead pipes being in a defective state. The pipes had been repaired several times before.

Did you also take out a large kitchen range and put a small one in its place because the large range burned too much coal?—Yes; and we filled up the space thus obtained in the fireplace opening by putting a small gas-stove there which had previously stood in another part of the kitchen.

Mr. Mansfield said: I am of opinion that Mr. Kerr might have proceeded for penalties against Mr. Stonor, or whoever put up those pipes, from their not being 3 in. from the wood; but I utterly repudiate the doctrine that if I make a repair I am bound to repair with the same material as the original,—that if, for instance, a thing was made of cast-iron, I could not, in repairing it, use some other material for the same purpose without rendering myself liable to the Act. It is absurd to say if I put in a stone instead of a brick in the wall, that is not a repair. Therefore, I dismiss the summons.

In the case of Kerr *v.* Barron and Wilson, also heard before Mr. Mansfield, the District Surveyor of St. James's claimed 5*l.* for the inspection of work done by the defendants at the Conservative Club House, the work in question consisting of the removal of a stove from one part of a room to another, and the carrying of the stove-pipe through the wall into the extremity of the flue. It was work, Mr. Kerr contended, which properly came under his supervision, the building being a very important one, and no mercy would have been shown to the district surveyor if fire had resulted from his neglect to see the work properly done. The fee he was entitled to under the Act was 5*l.* In these cases of large fees he was always open to receive application for abatement, but in this case no such application had been made to him.

The Solicitor for the defence contended that the case did not come within the Act at all, or that, if it did, it came under section 50, as being work for which, not being covered by the schedule, the District Surveyor was bound to apply to the Board of Works to fix the amount of his fee. It was monstrous to contend that this mere alteration of a stove-pipe and flue came under sections 20 and 21, and entitled the District Surveyor to a fee half as large as he would be entitled to for the entire building of the Conservative Club-house.

Mr. Mansfield rather agreed that the sum claimed was exorbitant, as the work was much slighter than some of the works specified in the schedule as entitling the district surveyor to a fee of only 10s. At the same time, he believed that, under section 9, Mr. Kerr was entitled to claim the 5*l.*, and he was bound to give judgment accordingly.

Cromwell House.—At a representation of Mrs. Freake's original three-act comedy "Deeds," which was given on the 2nd inst., Mr. Herbert, of the Vaudeville Theatre, as *Henri de Clermont*, especially distinguished himself, and aided materially in rendering this the most successful rendering of the piece which has been given. Mr. C. P. Colnaghi, son of the late well-known Mr. Dominic Colnaghi, and who is good both as a singer and an actor, also deserves special mention. A very charming scene, representing the banks of the Thames at Chelsea in the time of George III., was built up for the purpose with much skill. The financial result of the Waverley *Tableaux* recently given here was very satisfactory, and Mrs. Freake had the pleasure to send 600*l.* to the Irish Famine Fund, 600*l.* to the Orphan Fund of the Artists' General Benevolent Institution, and 600*l.* to the Victoria Hospital; receiving in return, from the latter institution particularly, many well-deserved thanks.

CHURCH-BUILDING NEWS.

Rhondda Valley.—On the 17th ult., Mr. and Mrs. Crawshay Bailey attended with a large party at Ystradyfodwg, in the Rhondda Valley, to lay the foundation-stone of a new church which Mr. Bailey purposes erecting there in the midst of his large mineral estates, at a total cost to himself of about 7,000*l.* The church is being erected on freehold land belonging to Mr. Bailey, on the hill-side immediately above the little town, the site of which, together with an acre and a half of land, he has conveyed, in fee, for the use of the Church of England for ever. The building is already in an advanced state, the side walls having been reared 8 ft. or 10 ft. above the foundations. The edifice will be more than twice as large as Llanfoist or Llanthewy Skirrid churches, which Mr. Bailey, at his own expense, has recently restored. It is to seat 550 persons, and the contract price is just 4,000*l.*, but when the extras, the value of the land, and the cost of approaches and of fences are added, the total is put down at from 6,000*l.* to 7,000*l.* The edifice is in the Decorated Gothic style, and is being built of native stone, with Bath stone dressings. On plan it will consist of a chancel and a nave with two aisles, or, more correctly speaking, a nave and south aisle. There will be a tower on the north, which will also form the porch or main entrance to the church, and will be surmounted by a small spire; the total height of the tower and spire to be 90 ft. There is also to be an organ-chamber and a large vestry on the south side of the chancel. The windows will be glazed with cathedral glass; the seats, of the modern open shape, will be of pitch-pine, stained and varnished, and both chancel and nave will be floored with Godwin's encaustic tiles. The building is to be heated with Grundy's patent stoves. The character and style of the reredos have not yet been decided upon. Mr. J. B. Fowler, Brecon, is the architect, and Messrs. C. Sheppard & Son, Cardiff, are the contractors. A peculiar feature in the church is that there is to be a tank fixed in the western corner of the nave for adult baptism by immersion.

Cottingham.—The Church of St. Mary Magdalene, Cottingham, has been re-opened, after alterations. The galleries, which occupied three sides of the building, and the old-fashioned high-backed pews, have been removed, the place of the latter having been taken by chairs. The church consists of a nave and side aisles, and these latter have been considerably extended. In the north aisle, at the chancel end, an organ-chamber has been erected. Further room was also obtained by the removal of the vestry to the south aisle. The chancel has been entirely rebuilt, and the whole of the windows, which are of cathedral tinted glass, have been reglazed by Messrs. Pepper & Co., of London. The clerestory windows, which were very irregular, have been removed and placed in uniform positions. There is now an entrance on the northern side of the church, the doorway which was closed up being re-opened, and a door removed from the west end fixed in place of the old one, which was scarcely 5 ft. in height. The building has been re-roofed, the present roof, which is slated (Westmoreland green slate being used), being of considerably higher pitch than was the old one, which was covered with lead. The materials composing the present roof are all new, with the exception that in the nave portion the old transverse beams have been utilised. The balustrades of the galleries have been re-worked into the new Communion-rails which have been placed in the church. The columns have been thoroughly cleansed, the paint and whitewash being removed by a chemical process. Of these pillars there is one that deserves special mention. It is in keeping with the others in every respect, except that the capital is composed of four figures banded together. The figures consist of a female, two knights, and a bishop. The pulpit has been lowered, and heating apparatus has been furnished by Messrs. Vipan & Headley, of Leicester. The new choir-stalls are of oak, with carved bosses, by Messrs. Phillips, of Northampton. Two new buttresses have been erected on the exterior at the east and west angles of the north and south aisles; the clock has been removed from the west end to the north side, and the height of the tower has been increased by about 15 ft. The original contract was for 2,100*l.*, but this amount has since been considerably exceeded. The architect in charge of the work was Mr. A. Hartshorne, the builder being Mr. E. Barlow, of Rothwell; Mr. W. Simpson, of Cottingham, acting as clerk of the works. The iron portion of the work was by Messrs. Mobbs, Snow, & Wood, of the Eagle Foundry, Northampton.

DISSENTING CHURCH BUILDING NEWS.

Tulse Hill.—A new Wesleyan chapel has been opened at Tulse Hill. It occupies a fine position at the corner of the Norwood and Christchurch roads, being set back from the former 100 ft. It is in the early Gothic style, and built of Kentish rag and Bath stone. The main elevation has a five-light window and moulded tracery, below which is a doorway with coupled shafts and cusped head. The dimensions are 80 ft. by 52 ft. in the body of the chapel, with a semicircular sided chancel 30 ft. deep in addition, which, with the double entrance porches, gives a total length of 126 ft. The arcades are in five wide bays, of 10 ft. each, supported by polished Shap granite columns, with carved capitals. A shallow gallery, two seats deep, is placed behind the columns in the sides and at one end. The roof is wagon-headed and boarded, the principals having cusped filling-in with a hammerbeam treatment. There are five large traceried windows in each side, with small ones below. The chancel has seven lancet windows. The choir stalls have richly-carved bench ends, and, with the pulpit and sittings, are all of pitch pine. A large organ-chamber occupies one side of the chancel, and a vestry the other. In the basement is a large school-room, 51 ft. by 51 ft., with a height of 15 ft., and amply lighted. There are several other class-rooms and vestries. A lofty tower and spire of good proportion are in course of erection, the design being that of an octagon lantern on the tower, with pinnacles at each angle, and smaller ones at springing of spire above octagon. The tower is 20 ft. square at the base, and has no projecting buttresses. It is proposed to place a clock and bell in the tower by public subscriptions. The building is warmed by hot-water, and the gasfittings are by Richardson, Ellson, & Co. The architect is Mr. Bell, of New Broad-street, and the builders are Messrs. J. & C. Bowyer, of Norwood. The total cost will be, including fencing, upwards of 11,000*l.*

ROMAN CATHOLIC CHURCH-BUILDING NEWS.

Wolverhampton.—The new chancel, chancel aisles, chapels, sacristies, &c., of the (R.C.) Church of SS. Mary and John, Snow-hill, which have occupied more than three years in erection and completion, and have cost nearly 7,000*l.*, have been solemnly dedicated. The church, as it originally stood, consisted of nave, aisles, and transept. Mr. Hansom, of London, is the architect. The new chancel, which adds 50 ft. to the length of the church, is built in three bays, surmounted by a clearstory of six windows, delicate shafts rising between the arches and supporting a richly-groined roof. The chancel divides itself into sanctuary and choir. The altar and reredos are in Caen stone, elaborately carved, with alabaster shafts. The central window of the apse is filled in with stained glass, by the firm of Hardman. The central light portrays the Crucifixion, and below that a *pieta*. St. Mary and St. John are in the right and left lights, one on each side of the cross, and below these figures are the Blessed Virgin as the Mother of Sorrows, and St. John conducting the Holy Mother to his own home. The north and south aisles are almost as long as the chancel. They also have groined roofs, and each terminates in a chapel, that in the north aisle being dedicated to the Virgin, and that in the south aisle to the Sacred Heart. The aisles, again, are flanked by smaller chapels, with St. Joseph and St. Patrick as the patron saints. Between the chancel and the aisles are carved oak screens, by Boulton, of Cheltenham. The sculpture is by Shepherd, of Bristol. The exterior walls of the new chancel are of Gornal stone, the interior being of Bath stone.

Worcester.—St. George's (R.C.) Church, Worcester, has lately undergone costly alterations and additions, including the building of a new chancel. The church was erected just fifty years ago, in the then-prevailing manner, the plan being a simple parallelogram, 40 ft. in width in one span, with a shallow recess in front, adorned with a couple of columns and

pilasters to form a portico, and having a similar recess at the sanctuary end, in front of which the altar was placed. The columns, cornices, and other ornamental features were copied from Greek examples, and the whole was substantially erected. The church may now be said to be completed by the erection of a sanctuary, transepts, side chapels (dedicated respectively in honour of the Blessed Virgin and of St. Joseph), a baptistery, confessionals, and a sacristy, over which is a large room for use as a library: all designed in harmony with the original structure, but with the style more freely treated, and with greater variety of detail. The old recess behind the altar has additional openings to the transepts, so that the original massive columns and pilasters now form a screen to the chancel, which is lofty and spacious, lighted by a clerestory filled with glass leaded in appropriate forms. The altar-piece is of very rich design, principally of marble-work, inclosing in the centre the copy of Raffaelle's "Transfiguration," which formed the old altar-piece; to this has been added wings, arranged in the old triptych form, painted with figures of SS. Oswald and Wulstan, and of SS. Ignatius and Francis Xavier. Beneath, and immediately behind the high altar, the composition is completed by a painting on a gold ground,—archangels and angels adoring,—by Mr. Joseph Bouvier, of London, who has also painted the large side figures. The altar itself is of marble and alabaster, of simple outline, but adorned with sculptured foliage, the monogram of the Holy Name, and the emblems of the Passion of our Lord. The general contract has been carried out by Mr. J. Kendrick, and the three marble altars and pulpit have been executed by Mr. W. Forsyth, of Worcester, the whole from the designs of Mr. S. J. Nicholl, of Caversham-road, London.

Northampton.—The foundation-stone of a new chapel, in connexion with the Roman Catholic convent, Northampton, has been laid. The chapel, which is dedicated to St. Joseph, is to be erected on the terrace at the rear of the convent, the style being Romanesque. Mr. W. Hull is the architect, the builder being Mr. Dunkley. The building, when completed, will accommodate 150 persons.

Books.

Handbook of the Dyce and Forster Collections, in the South Kensington Museum. Chapman & Hall.

THIS, which is one of the series of South Kensington Handbooks, not only supplies an account of the Dyce and Forster Collections, but gives particulars of the two donors, and being, moreover, illustrated with portraits and *fac-similes* of autograph letters from eminent people, makes a charming little book, which has an interest of its own, quite apart from its purpose as a guide for visitors.

Miscellanea.

Industrial School for Girls.—The foundation-stone of the Middlesex Industrial School for Girls was laid on the 30th ult., by Mr. Edmund E. Antrobus, J.P. The site is within the parish of Bedfont, less than a mile from the Feltham Station, on the South-Western Railway, and forms a portion of the Spelthorne Sanatorium grounds. In a large outbuilding of the Sanatorium Mr. Antrobus reviewed the events which had led to the present attempt to provide the means of rescuing young girls, who, under the influence of bad associates, had committed, perhaps, slight offences, from the disgrace of being sent to prison. It was thought that, in dealing with girls, many of whom would be very young, the "Cottage School" system would be most likely to prove successful, and it was of the first cottage home for this purpose that they were about to lay the foundation-stone. A report to the subscribers showed that the committee had about 900*l.* in hand, over 1,000*l.* being required for the building, and a further sum to meet the cost of furnishing the home. The cottage, to accommodate twelve children and a matron, will be of red and black brick, with stone dressings. It will be Elizabethan in character, and from the designs of Mr. Charles Barry, the architect of the Middlesex Industrial School for Boys at Feltham.

Prizes for Metal Casting.—The Worshipful Company of Founders have offered a number of prizes for competition amongst persons carrying on business as founders, or employed or engaged by such persons. The list includes a prize of 10*l.* for the best, and one of 5*l.* for the second best, specimen in brass or bronze of an original nude figure, not to exceed 12 in. in height, including the base. The figure to be the property of the Company, the model to remain the property of the designer (with 10*l.* 10*s.* added by past-master Mr. James Franks); a prize of 5*l.* for the best, and one of 3*l.* for the second best ornamental bell, not to exceed 9 in. in diameter at the mouth. The first prize bell to be the property of the company, the model or pattern to remain the property of the designer. A prize of 5*l.* for the best, and one of 3*l.* for the second-best, specimen of *repoussé* brass-work of lock or hinge furniture for doors of Mediæval design, the design and the work to be by the same person. The first prize to be the property of the company; and the freedom and livery of the Company of Founders to the author of the best essay on the History and Art of Founding in Brass, Copper, and Bronze. To the winner of this prize an additional sum of 10*l.* 10*s.*, is the gift of Past-Master Mr. Robert Warner. The prizes for the metal-work seem scarcely large enough. If the Company hope to induce the production of anything worth having they should withdraw the condition that the rewarded works are to become their property. Moreover, we should think it very doubtful that they will obtain a well-designed and modelled nude figure and a good bronze of it from the same competitor.

University College, London.—A Professorship of Archæology has been instituted at University College, and Mr. C. T. Newton, of the British Museum, has been appointed professor. A meeting in aid of the fund for the completion of the college buildings was held on the 2nd inst. at the Mansion House. In the absence of the Lord Mayor, the chair was taken by Mr. Alderman R. N. Fowler, M.P. Lord Kimberley moved, "That the manner in which University College, London, has been conducted and developed in accordance with its original principles has greatly advanced the higher education of this country, and meets with the approbation of this meeting." He had been struck by the dearth of really eminent men. We could all attain to a certain standard of proficiency, but those who were, as he might say, a head, or even half a head taller, intellectually, than others were very rarely met with, and we could not afford as a nation to lose the advantage of cultivating and bringing forward such men if they were to be found in any class. Mr. F. W. Buxton, M.P., seconded, and Mr. Jervoise Smith supported, the motion, which was carried unanimously. Mr. Alderman Cotton, M.P., moved, "That this meeting recognises the claim of University College upon the City of London for assistance for raising the fund for the enlargement of the college buildings, rendered necessary by the continually increasing number of students and the extension of its teaching." Explaining that some 20,000*l.* was immediately required to complete the additions most urgently needed, he mentioned that the Earl of Darby, being unable to be present, had forwarded a cheque for 500*l.* to the fund. The resolution was carried, and a committee was appointed.

J. Sessions & Sons, Gloucester and Cardiff, whose productions in enamelled slate goods we have had occasion to mention on other occasions, had a very meritorious display of their manufactures at Sydney. Messrs. Sessions adopt the principle of using white marble instead of slate for the panels of chimney-pieces, and enamel on the marble. The advantage gained is that the natural veins of the marble assist the decorator in his art.

Mr. J. Ebenezer Saunders, architect, was, at the meeting of the Metropolitan Board of Works, on the 2nd inst., unanimously elected Chairman of the Building Act Committee for the ensuing year, his predecessor, Mr. Runtz, receiving the thanks of the Board for the services he had rendered by the discharge of the duties of chairman during the last two years.

The Leicester Church Congress.—Following the example of last year, an exhibition of ecclesiastical art will take place at Leicester during the forthcoming Church Congress, at the Skating Rink, in Rutland-street, which will be specially fitted up and decorated for the occasion. The exhibition will open on the 27th of September, and close on the 2nd of October.

The Electric Light is to have another trial in the streets of the City of London. At the meeting of the Commissioners of Sewers on Tuesday last, the Streets committee brought up a report on a reference to them in March last to consider as to the adoption of improved means of lighting the streets of the City. They stated that the Bridge House Estates Committee of the Corporation were desirous that the three City bridges, London, Southwark, and Blackfriars—should be lighted by electricity, and, that being so, they were prepared, as an experiment, to suggest the lighting of certain streets in the City by electricity at the same time—viz, Queen Victoria-street, Queen-street and Queen-street-place, King William-street, Mansion House-street, the Poultry, Cheapside, Ludgate-hill, Ludgate Circus, the north side of St. Paul's-churchyard, and New Bridge-street, Blackfriars, together with the three bridges. They recommended, however, that before the experiment was undertaken, tenders should be invited with a view to ascertain the cost. Mr. Innes moved the adoption of the report, stating that the experiment in electric lighting upon the Holborn Viaduct was thoroughly successful as far as it went, but the cost was excessive. Since then, however, the Board of Works had carried on a similar experiment upon the Embankment and Waterloo-bridge, and had contrived to reduce the cost of lighting, and there was reason to hope that the expense might be still further decreased. The Corporation had expressed a wish that their three bridges might be lighted by electricity, and that being so, the Commission had determined to extend the trial by taking in all the important streets leading to the bridges. The report was adopted.

The Employers' Liability Bill.—It is intended to hold a conference in a few days with the view of arriving at some agreement between the supporters and opponents of the Employers' Liability Bill. A proposal will be submitted to the conference to introduce into the Bill a clause providing for a system of insurance. At a meeting of employers held at Birmingham last week to consider the Bill, Mr. E. Fisher Smith, chairman of the South Staffordshire Coal Trade, presided. Mr. Pease, secretary of the Mining Association of Great Britain, argued against the Bill, which, he said, would lead to a large amount of litigation. He contended that the solution of the problem of the relations of masters and workpeople with regard to accidents lay in a system of insurance. Mr. J. P. Hunt, chairman of the South Staffordshire Iron Trade Board, proposed a resolution to the effect that the meeting, after considering the effects of the Bill, viewed it with the greatest alarm, and strongly urged upon Parliament the desirability of referring the Bill to a select committee. Colonel Harrison (Brownhills) seconded the resolution, which was supported by Major Walker (Stourbridge). Mr. Wiggin, M.P., said that the employers of labour must make up their minds to accept a Bill of some kind. In and out of Parliament there was a general opinion that something ought to be done to enable *employés* to obtain compensation in case of accident. He was averse to a question which so greatly and gravely affected the interests of employers being hurried through Parliament in one short session, and for that reason he was in favour of the Bill now before the House being referred to a select committee. The resolution, after a lengthened discussion, was unanimously adopted.

Proposed Art Gallery at Birmingham.—The Mayor of Birmingham (Alderman Richard Chamberlain) read to the town council on Monday a communication from Messrs. Richard & George Tangye, the well-known engineers, offering, if the council will make provision for a permanent art-gallery, to contribute a sum of 5,000*l.* for the purchase of specimens of art for exhibition. Should an equal sum be subscribed by other persons, Messrs. Tangye offer to give a further sum of 5,000*l.* for the same purpose. A resolution was adopted thanking Messrs. Tangye for their generous offer, and expressing the desire of the council to comply with the conditions.

We are Advertising for Monday evening next a sale of building land at Tooting. The once-famous nursery of Messrs. Rollisson has been developed as a building scheme, and 133 plots of land, with a large block of one acre in the rear, will be competed for. The sale takes place at the inn near the property, and Messrs. Protheroe & Morris are the auctioneers.

West Anstey Church, near Southmolton, Devon, has recently been re-opened, after partial restoration. The church, dedicated to St. Petrock, consists of chancel, nave, north aisle, south porch, and western tower, and is built of local rubble stone, with dressings partly of local stone of very pleasant colour, and partly of Ham-hill stone and Bath stone. The roofs are covered with grey slates and red crimped ridge tiles. The gables are surmounted with crosses of red pottery of special design. In order to preserve the original proportion of the chancel, a pillar with a side-arch has been built. A new open-timber roof has been constructed, and the door and windows have been renewed. New roofs also have been put up over the remainder of the church, none of the old wood being available for the renewal. The porch roof has been replaced with new oak, the old design being followed as accurately as possible. It was found necessary to rebuild nearly the whole of the north aisle, and to insert new windows. New windows have also been inserted in the nave. The old entrance oak door has with great difficulty been preserved and repaired. The porch entrance has been rebuilt. The reredos consists of an oak canopied framing, with a cross in the centre panel, and angels painted on the double panel on either side. The tower at the west end is in a very dilapidated state, but it cannot at present be restored for want of funds. The church is paved with Maw's tiles, with diagonal coloured border. The pulpit is in Bath stone, with four panels. The architect for the work was Mr. W. White, F.S.A., of London; and the builder Mr. John Cock, jun., of Southmolton.

Burning of the Duke's Theatre, Holborn.—The Duke's Theatre, situated in Holborn, was entirely destroyed by fire on Sunday evening last. The fire was discovered a few minutes before five o'clock, and within a very few minutes of the alarm being given several steam fire-engines arrived on the scene. It was some time, however, before the firemen could gain an entrance to the theatre, owing to the fact that they had to break open the doors of the box-entrance in Holborn. By the time this was effected no fewer than twelve steam fire-engines were simultaneously playing upon the flames. After the fire had been raging for about twenty minutes the roof gave way, carrying portions of the gallery and upper boxes with it. The fire, although fierce, did not last long, all being virtually over within three hours of the first alarm. The fire is supposed to have broken out near the green-room; it was from that part of the building that the smoke and flames were first seen to issue. Thence it caught the property-room and stage, which it quickly destroyed, together with a quantity of machinery underneath the stage.

Worthing.—Mr. W. Oldham Chambers, of Lowestoft, has been appointed architect to the new infirmary and dispensary about to be erected at Worthing. The works will be commenced forthwith, the plans having been approved by the governors.

Messrs. Robert Boyle & Son have removed their London offices and show-rooms from Mansion House buildings, Queen Victoria-street, to more convenient premises situated in Queen Anne's-buildings, 64, Holborn Viaduct.

Proposed New Church in Exeter.—The Exeter Church Extension Committee have invited the architects of Exeter to send in designs for proposed new church in Newtown. The competition is limited to architects residing or having offices in Exeter.

The Cathedrals.—Lord Blachford, K.C.M.G., and Sir Walter Charles James, have been placed on the Commission to inquire into the condition of the cathedral churches in England and Wales.

TENDERS

For new offices, engine-house, &c., for the Local Board of Health, Wanstead, Essex. Mr. John T. Bressey, architect:—

Bragger	£3,320 0 0
Larter & Son	2,660 0 0
Rider & Son	2,582 0 0
Staines & Son	2,548 0 0
Garrud	2,483 0 0
Reading	2,470 0 0
Mundy	2,450 0 0
Howell & Son	2,430 0 0
Harper	2,357 0 0
Greager	2,339 0 0

For proposed villa, Burgess-hill, Sussex, for Mr. F. J. Cully. Mr. F. W. Hyde, architect:—

Downer (accepted)	£880 0 0

For the erection of new infant schools, Kingston-on-Thames. C. L. Luck, architect. Quantities by Northcroft, Son, & Neighbour:—

Adkins	£1,656 16 0
Manley	1,600 0 0
Jarvis	1,595 0 0
Beale	1,589 0 0
Crockett	1,577 0 0
Clemence	1,485 0 0
Vare	1,475 0 0
Dobson	1,446 0 0
Mudie	1,410 0 0
Havell	1,410 0 0
Higgs	1,409 0 0
Hobern	1,375 0 0
Todd	1,327 0 0
Mason	1,298 0 0
Haynes	1,285 0 0
Oldridge	1,265 0 0

For house, Wanstead Park, Wanstead, Essex. Mr. John T. Bressey, architect:—

Brown	£2,050 0 0

For taking down and re-building No. 4, Claremont, Hastings. Messrs. S. & A. Smith, architects, Hastings. Quantities supplied:—

Wormersley	£2,175 0 0
Vidler	2,072 0 0
Eldridge	2,050 0 0
Taylor Bros.	1,990 0 0
Howell & Son	1,950 0 0
Coussins	1,915 0 0

For alterations and additions to No. 10, Bolton-row, Mayfair, for Dr. W. H. Corfield. Mr. Mark H. Judge, architect:—

W. & E. Curtiss	£585 0 0
Andrews	530 0 0
With New Story.	
W. & E. Curtiss	£775 0 0
Andrews (accepted)	770 0 0

For new steam laundry for the Richmond Steam Laundry Co. Mr. Frank J. Brewer, architect. Quantities by Mr. Barber:—

Jackson	£3,243 2 7
Seal	3,235 0 0
Sims	3,210 0 0
Sweet & Loder	3,120 0 0
Hampster	3,100 0 0
Maton	3,000 0 0
Carless	2,974 0 0

For stables, &c., for the Corporation of Leicester:—

Horspool	£1,459 0 0
Ramett	1,307 0 0
Riddett	1,304 0 0
Barnett	1,297 0 0
Tyrrell	1,272 0 0
Hewitt	1,256 0 0
Sharpe & Sons	1,247 10 0
Major	1,242 10 0
Diamond	1,222 9 0
Jewsbury	1,221 10 0
Plant (accepted)	1,217 10 0

For cattle-sheds for the Corporation of Leicester:—

Bland & Sons	£392 10 0
Jewsbury	391 0 0
Plant	382 0 0
Duxbury & Son	365 8 0
Hewitt	359 0 0
Major (accepted)	351 0 0

For the erection of a boat-house on Eel Pie Island, for the Twickenham Rowing Club. Mr. W. T. Mann, architect:—

Saunders & Son (accepted)

For the erection of a warehouse for Mr. W. Underhill South Lambeth. Mr. W. T. Mann, architect:—

Rede	£2,200 0 0
Deards	2,052 0 0
Fairhead	1,591 0 0

For repairs and decorations at Nos. 13 and 14, Randolph gardens, Carlton-road, Maida-vale, for Mr. Alfred Rawlinson. Mr. J. G. Raynes, architect:—

Pitt	£431 3 0
Langmead & Way	387 0 0
Yerbury	380 0 0

For the formation of new roads and sewers on the Willesden Park Estate, Willesden-green, for the Metropolitan Railway Company. Mr. Walter Graves, surveyor. Quantities by Mr. Walter Barnett:—

Williams, Son, & Wallington	£8,270 0 0
Botterill	7,864 0 0
Firbank	7,681 18 6
Mowlem & Co.	6,955 0 0
Crockett	6,924 0 0
Keeble	6,862 0 0
Wall Bros.	6,120 0 0
Meston	6,090 0 0
Nowell & Robson	6,073 0 0
Killingback (accepted)	5,800 0 0

For alterations and additions to house in the Neckinger-road, for the Bermondsey Vestry. Mr. Geo. Elkington, architect:—

Drake	£347 0 0
Battley	335 0 0
Brockwell	305 0 0
Almond	279 0 0
Buller	265 0 0
Eldridge & Gee (accepted)	221 0 0

For proposed new church (first portion) Ditchling-road, Brighton. Messrs. Scott & Hyde, architects. Quantities by Mr. F. W. Hyde:—

Barnes	£1,464 0 0
Lockyer	1,441 0 0
Cheeseman & Co.	1,428 0 0
Marshall	1,300 0 0
Patching & Son	1,266 0 0

For the erection of new premises, No. 15, St. Mary Axe, for Mr. Thos. Wright. Mr. Thos. Blashill, architect. Quantities by Mr. D. Cubitt Nichols:—

King & Son	£3,300 0 0
J. & F. J. Wood	3,128 0 0
Marr	2,928 0 0
J. & H. Cocks	2,890 0 0
Little	2,777 0 0
Ansell	2,762 0 0
Conder	2,689 0 0
Langmead & Way	2,500 0 0

For alterations and additions to stabling, Whitecross-street, Cripplegate, for Mr. S. Ham. Mr. A. R. Brede, architect. Quantities supplied:—

Temple & Foster	£1,343 0 0
Merritt & Ashby	1,111 0 0
Woodward	1,100 0 0
Ashby Bros.	1,087 0 0
Wall Bros.	1,055 0 0
Mattock Bros (accepted)	1,033 0 0
Crabb	933 0 0

For house and studio, Notting-hill, for Mr. C. W. Bach. Mr. A. R. Brede, architect:—

Grigg (accepted)	£2,030 0 0

For new warehouse, Rupert-street, Bristol. Mr. Henry Crisp, architect:—

Eastabrook & Sons	£2,800 0 0
Wilkins & Sons	2,510 0 0
Heatherley	2,495 0 0
Howell & Son	2,400 0 0
Cowlin & Son	2,375 0 0
Veals	2,374 0 0
Stephens & Bastow	2,249 0 0

For re-building the Dover Castle, and two houses and shops adjoining, at the Broadway, Deptford, for Mr. Overton. Mr. W. T. Hunt, jun., architect:—

Gill	£4,312 0 0
Hardy	3,800 0 0
Newman	3,655 0 0
Banks	3,495 0 0
Redman	3,485 0 0
Thomas	3,370 0 0
Holloway	3,293 0 0
Jerrard	3,289 0 0
Cockle	3,250 0 0
Crisp & Tomline (accepted)	3,017 0 0

For the erection of schools at Oldfield-road, Stoke Newington, for the School Board for London. Mr. E. R. Robson, architect. Quantities supplied by Mr. T. Thornton Green:—

Harrison & Wardrop	£9,065 0 0
Chappell	8,832 0 0
Scrivener	8,858 0 0
Sargeant	8,781 0 0
Williams & Son	8,713 0 0
Hobson	8,584 0 0
Kirk & Randal	8,569 0 0
Boyce	8,432 0 0
Wall	8,150 0 0

For the erection of a block of school buildings to accommodate 1,064 children, on a site in Abbey-lane, West Ham, for the West Ham School Board. Mr. J. T. Newman, architect. Quantities by Messrs. Curtis & Sons:—

Abrahams	£7,490 0 0
Reed	7,225 0 0
Boyce	7,183 0 0
North Bros.	7,112 0 0
Hearle & Son	6,984 0 0
Wall Bros.	6,983 0 0
Gentry	6,925 0 0
Nightingale	6,842 0 0
F. F. & J. Wood	6,570 0 0
Knight & Duston	6,556 0 0
Hoskings	6,495 0 0
Morter (accepted)	6,383 0 0

For the erection of a building on the site of Nos. 66 and 67, Cornhill, for the London and Lancashire Assurance Company. Mr. T. Chatfeild Clarke, architect:—

Trollope & Son	£17,873 0 0
Ashby & Horner	17,740 0 0
Higgs & Hill	17,484 0 0
Conder	17,382 0 0
Bywaters	17,168 0 0
Hall, Beddall, & Co.	16,850 0 0
Peto Bros.	16,800 0 0
Holland & Hannen	16,490 0 0
Ashby Bros	16,460 0 0
Brass	16,339 0 0
Lawrance	16,295 0 0
Colls & Sons	15,970 0 0

For certain works at Harvey-buildings, Strand. Mr. W. Paice, architect:—

Timewell (accepted).

For re-building portion of premises destroyed by fire at 13, Greek-street, for Mr. Wilson. Mr. W. Paice, architect:—

Timewell (accepted).

For proposed alterations and additions to the Hercules Pillars, Greek-street, Soho, for Mr. J. Higgins. Mr. W. J. Worthington, architect. Quantities by Messrs. Worthington & Canning:—

Earle & Son	£750 0 0
Grimwood & Sons	670 0 0
Phillips	637 0 0
Pickersgill	612 0 0
Lamble	563 0 0
J. & H. Cocks	548 18 0

For Onslow College of Science and Art, King's-road, Chelsea. Messrs. John T. Stokes & J. E. Arpin, architects:—

Belham & Co.	£1,895 0 0
Strong Bros.	1,779 12 8
Stimpson & Co.	1,683 0 0
Smith	1,651 0 0
Sharp & Mills	1,645 0 0
Craske	1,620 0 0
Holloway, Lavender-hill (accepted).	1,573 0 0

For cast-iron pipes and special castings, Contract No. 2, Saltley (Birmingham) Sewerage Works. Mr. E. Pritchard, engineer:—

Macfarlane, Strang, & Co., Glasgow	£2,134	0	0
Jukes, Coulson, & Co., London	2,102	17	6
Firmstone, Stourbridge	2,036	0	0
Cochrane & Co., Dudley	1,920	0	0
J. & S. Roberts, West Bromwich (accepted)	1,916	0	0
Staunton Iron Works Co., Nottingham	1,908	0	0

For coffee tavern and public hall, to be erected at Woolwich, for the Woolwich and Plumstead Coffee Taverns Company (Limited). Mr. Wm. Rickwood, architect, by whom quantities were supplied:—

Coombs	£7,639	0	0
Steed Bros.	7,532	0	0
Wilkins	7,315	0	0
Stiff & Son	7,287	0	0
Beale	7,165	0	0
Reading	7,134	0	0
Staines & Son	7,057	0	0
Gaund	6,935	0	0
Prout	6,653	0	0
Huey	6,618	0	0
Harris	6,600	0	0
Julian & Co.	6,600	0	0
Tongue	6,528	0	0
Kirk & Randall	6,380	0	0
Lonergan & Sons (accepted)	5,906	0	0

For painting St. Thomas' Square Chapel, Hackney:—

Shurmur (accepted)	£233	10	0

For alterations at the Lamb and Flag, Homerton, for Mr. Schnepp. Mr. H. J. Newton, architect:—

Shurmur	£1,071	0	0
Grimwood	895	0	0
Godden	835	0	0
Lamble	813	0	0
Anley	788	0	0
Impey	619	0	0
Wood	615	10	0

Counters and Pewterer's Work.

Mott	£135	0	0
Hilling	133	0	0
Rogers	131	0	0
Heath	127	0	0

For three villa residences, River-street, Islington. Mr. William Smith, architect. Quantities by Messrs. Brunsden & Budd:—

Friggens	£4,267	0	0
Little	3,643	0	0
Blow	3,410	0	0
Anley	3,390	0	0
Pritchard	3,337	0	0
Niblett	3,120	0	0
Dunford & Langham	2,995	0	0
Saunders	2,794	0	0
Larke	2,694	0	0
Shurmur	2,691	0	0
Aitchison & Walker	2,666	0	0
Mattock	2,637	0	0
Harper	2,635	0	0
Steel Bros.	2,245	0	0

For alterations, &c., to the Lawns, Clapham-common. Mr. Hudson, architect. Quantities not supplied:—

Coney	£757	0	0
McLachlan & Sons	655	0	0
R. & E. Smith	612	7	0

For Lewisham Congregational Church proposed Sunday schools. Mr. Geo. Sherrin, architect. Quantities supplied by Mr. Chas. Blomfield:—

Priestley	£5,482	0	0
Castle	5,285	0	0
Vincent	5,135	0	0
Reading	5,110	0	0
Tyerman	4,997	0	0
Stephenson	4,984	0	0
Jones & Co.	4,750	0	0
Stephens & Bastow	4,699	0	0
Julian & Co.	4,690	0	0
Beale	4,690	0	0
Higgs	4,630	0	0
Staines & Son (accepted)	4,484	0	0
Battley	4,461	0	0
Evans	4,426	0	0
Hobern	4,300	0	0
Abley	3,965	0	0

For alterations and decorations to Nos. 171 to 175, Regent-street. Messrs. Batterbury & Huxley, architects. Quantities not supplied:—

Clarke	£347	0	0
Nightingale	280	0	0
Bywaters	248	0	0
McLachlan & Sons	233	0	0

For the erection of a pair of villa-residences in the Frien-road, Lordship-lane, Dulwich, for Mr. Smith. Mr. Lovett, architect. No quantities supplied:—

Fisher	£1,625	0	0
Eldridge & Gee	1,498	0	0
Watson & Dennett, Dulwich	1,572	0	0
Goad	1,391	0	0
Hersham	1,224	0	0

For the erection of a residence (exclusive of domestic out-buildings), Dulwich, for Mr. James Henderson. Mr. Richard Peters, architect. Quantities by the architect:—

Mitchell	£2,420	0	0
W. & F. Croaker	2,310	0	0
Downs (too late)	2,275	0	0
Higgs	2,099	0	0
Watson & Dennett	2,075	0	0
Parrish	2,000	0	0

TO CORRESPONDENTS.

Strength of Staffordshire Bricks.—In the statement of experiments, commas should take the place of points marking decimals in the figures showing the "stress in pounds."

E. T. H.—J. J. L.—F. W. H.—P. & M.—A. R. B.—W. T. H.—T. C. C.—S. & B.—L. & W.—C. & Sons.—E. & G.—C. Bros.—R. & R. S.—A. I.—F. J. B.—R. P. S.—J. H.—S. R. L.—C. B.—J. T. B.—M. H. J.—C. S. S.—C. F.—W. C.—T. R. S.—W. S.—J. R. W.—R. P.—W. W. L.—D. W.—W. O. C.—Ratepayer.—J. J. L.—J. G. S.—E. C. S.—W. T. M.—H. J. N.—M. Bros.—E. G.—R. P.—A. C. (we cannot advise on *ex parte* statement. At any rate, fuller information would be necessary).—R. & Son (information not sufficient).—F. C. (ditto. We cannot interfere in private disputes).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course with the authors.

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IMPROVED HOT - WATER APPARATUS,
FOR WARMING AND VENTILATING
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